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The Use of Overhead Projection in Classrooms for the Mentally Retarded.

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The need for visual presentation in classes for the mentally retarded is presented, and projector operation and maintenance are described. Transparency production and design are considered, and teaching with the overhead projector is discussed. (JD)

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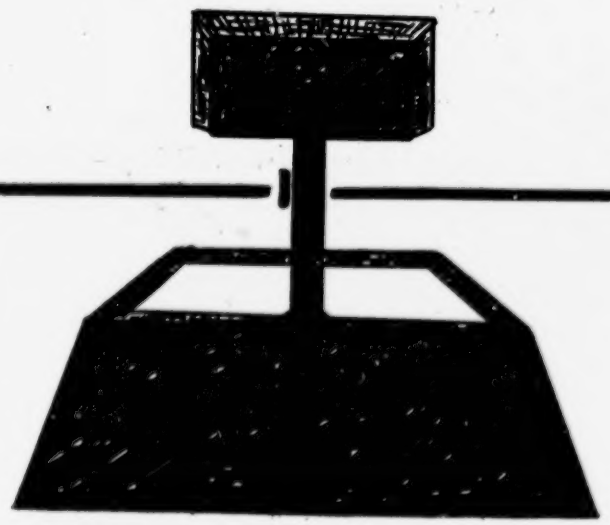
SPECIAL EDUCATION CURRICULUM DEVELOPMENT CENTER

an in-service training approach . . .

THE USE OF

OVERHEAD PROJECTION

IN CLASSROOMS FOR THE MENTALLY RETARDED



A Cooperative Program Involving
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SPECIAL EDUCATION CURRICULUM DEVELOPMENT CENTER

AN IN-SERVICE TRAINING PROGRAM

THE USE OF OVERHEAD PROJECTION IN CLASSROOMS FOR THE MENTALLY RETARDED

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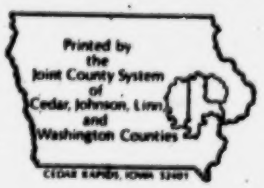

March 1969

POLICY STATEMENT

Please Read

The Special Education Curriculum Development Center has as its main objective the operation of a statewide in-service training program for teachers of the mentally retarded. Twenty special class teachers from different geographic areas serve as consulting teachers. They attend training sessions at the University of Iowa and then return to their home area to conduct field sessions. All materials prepared for SECDC are intended for dissemination through the field sessions conducted by the consulting teachers. Persons reading SECDC material but not attending the field sessions should keep in mind that the purpose of the material is to serve as a starting point for in-service training and that the publications themselves are not end products.

It should also be noted that any reference to commercially prepared materials, equipment or supplies by the Special Education Curriculum Development Center does not constitute a recommendation or endorsement for purchase. The consideration of such material is intended solely as a means of assisting teachers and administrators in the evaluation of materials.

The evaluation sheets found at the conclusion of this material represent the continuing effort of the Special Education Curriculum Development Center to meet the needs of the Special Class teacher. It is requested that teachers using this material record statements and specific evaluation points as indicated and submit this to the Center.

The time and effort given to this report will be greatly appreciated. You may be assured it will receive serious consideration in structuring guidelines for further development of materials to be disseminated.

THE USE OF OVERHEAD PROJECTION IN CLASSROOMS FOR THE MENTALLY RETARDED

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I. INTRODUCTION

The Need for Visual Presentation in Special Classes

The mentally retarded student typically experiences difficulty handling the processes of communication. Indeed, much of special education is concerned with developing student communication skills both as speakers and listeners.

Mentally retarded students have particular difficulty comprehending ideas expressed in the long written passages and fast moving spoken explanations that are so typical of regular classroom communication.

Visual presentations can reduce many of these communication problems. Abstract ideas can be given concrete qualities, verbage can be greatly reduced, and the pace of presentation can be matched to the students' speed of comprehension.

Overhead projection offers the special class teacher a method of visual presentation that is both effective and efficient.

This SECDC publication is specifically designed to assist the special class teacher in making visual presentations using overhead projection. Operation of overhead projectors, screen placement, room arrangement, production of transparencies and other mechanical procedures are covered. A section is devoted to ideas a teacher may use to design transparencies that are tailored to the specific needs of his own class. Particular emphasis is placed on overhead projection

teaching techniques such as: stimulating student interest, maintaining discipline, pacing, and student participation.

Suggestions offered herein regarding equipment and materials are well within the budgetary capabilities of modern school systems. For example, a typical overhead projector can be purchased in the price range of $150 to $200. Such a projector will last for many years with little maintenance cost. Plastic sheets used to make transparencies cost about twenty-five cents each. Transparencies generally have a useful life of a number of years. If a transparency is used with a class of fifteen students once each year for a period of four years, the cost per student is less than half of one cent.

This publication is not intended to be a complete work on overhead projection systems. Wet process (photographic) transparencies, polarization effects, and certain other materials and uses have been purposely omitted because they have limited practical application or are not now normally available to the special class teacher. The "state of the art" is rapidly changing. New processes and materials are constantly becoming available. Teachers mastering the content of this basic publication should be able to quickly adjust to future developments.

The format of this publication is primarily graphic for two reasons: (1) the subject is well-suited to graphic presentation and (2) the graphic style can serve as a model for teacher-produced visuals.

What is Overhead Projection?

Overhead projection is a method of teaching that involves the projection of large,

exceptionally bright instructional images on a screen. It is so named because it projects the image over-the-head of the teacher.

Overhead projectors are easy to operate. There is no need to darken the classroom as with opaque, motion picture, and slide projectors. The teacher remains at the front of the classroom facing the students, thus more easily gauging student response and maintaining discipline.

While large visuals such as posters, maps, and bulletin board displays can be effective instructional aids, their large bulk presents problems of: (a) high initial costs of both materials and time (b) ackward for teacher or students to handle (c) cumbersome to store (d) storage space is often not near the classroom. Overhead transparencies are much less expensive than large visuals, present no handling problems because they are small and lightweight, and are easily stored right in the classroom when they are to be used. Further, when projected, they are even

larger and brighter than most posters, etc.

Teachers are not limited to the use of commercially produced materials with overhead projection but may quickly make their own. Most noteworthy, the teacher can control the pace and manner of presentation. Concepts can be slowly developed in a logical sequential fashion. The teacher may pause any time for students' questions and comments, to reword an explanation, or to reinforce through reference to common everyday events.

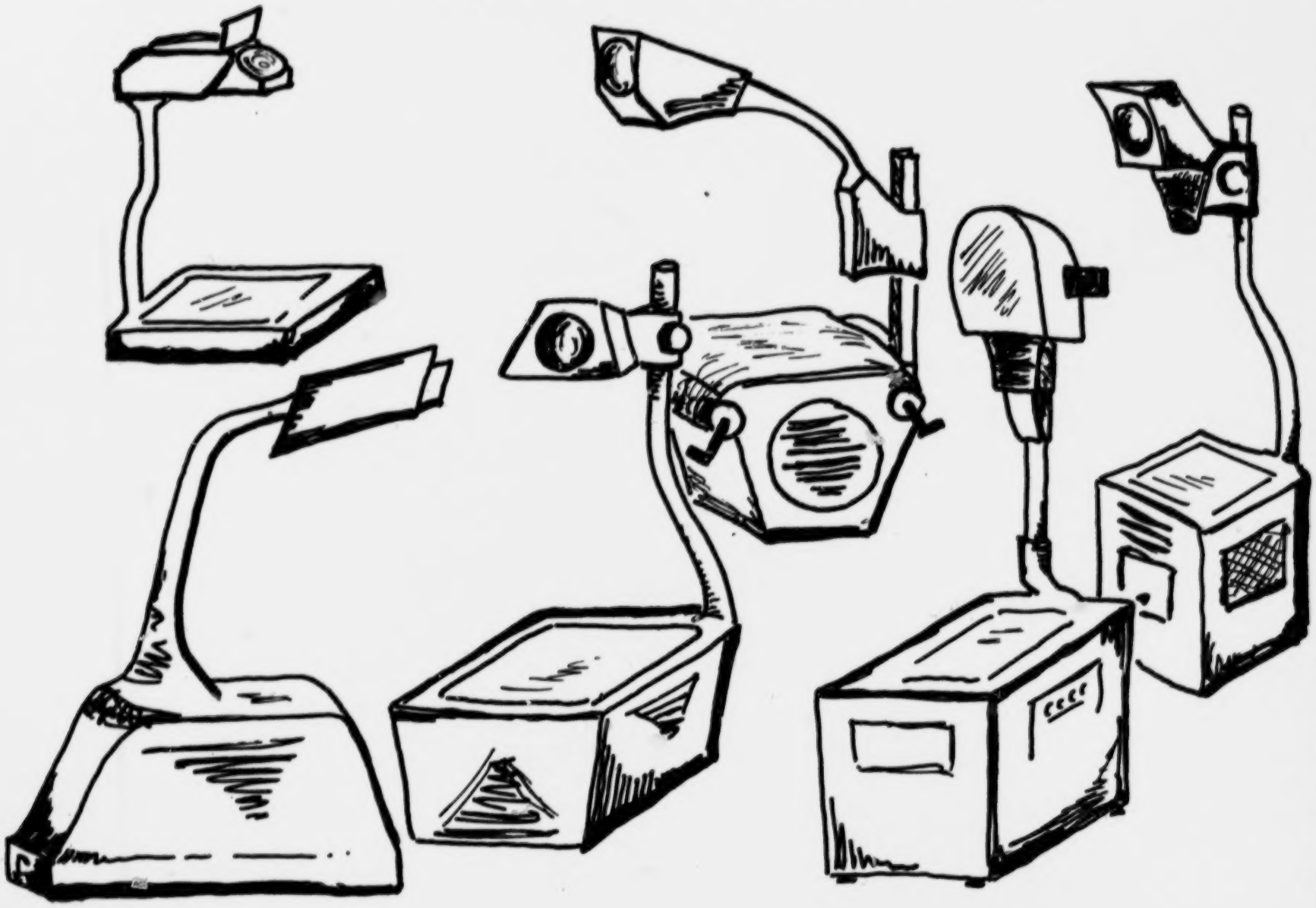
Students and teachers alike find the large bright images stimulating. Indeed, teachers find that overhead projection becomes an integral part of their instructional program--not merely an "aid" to it.

I'LL BET

YOU CAN'T READ THIS BOOK WITHOUT—

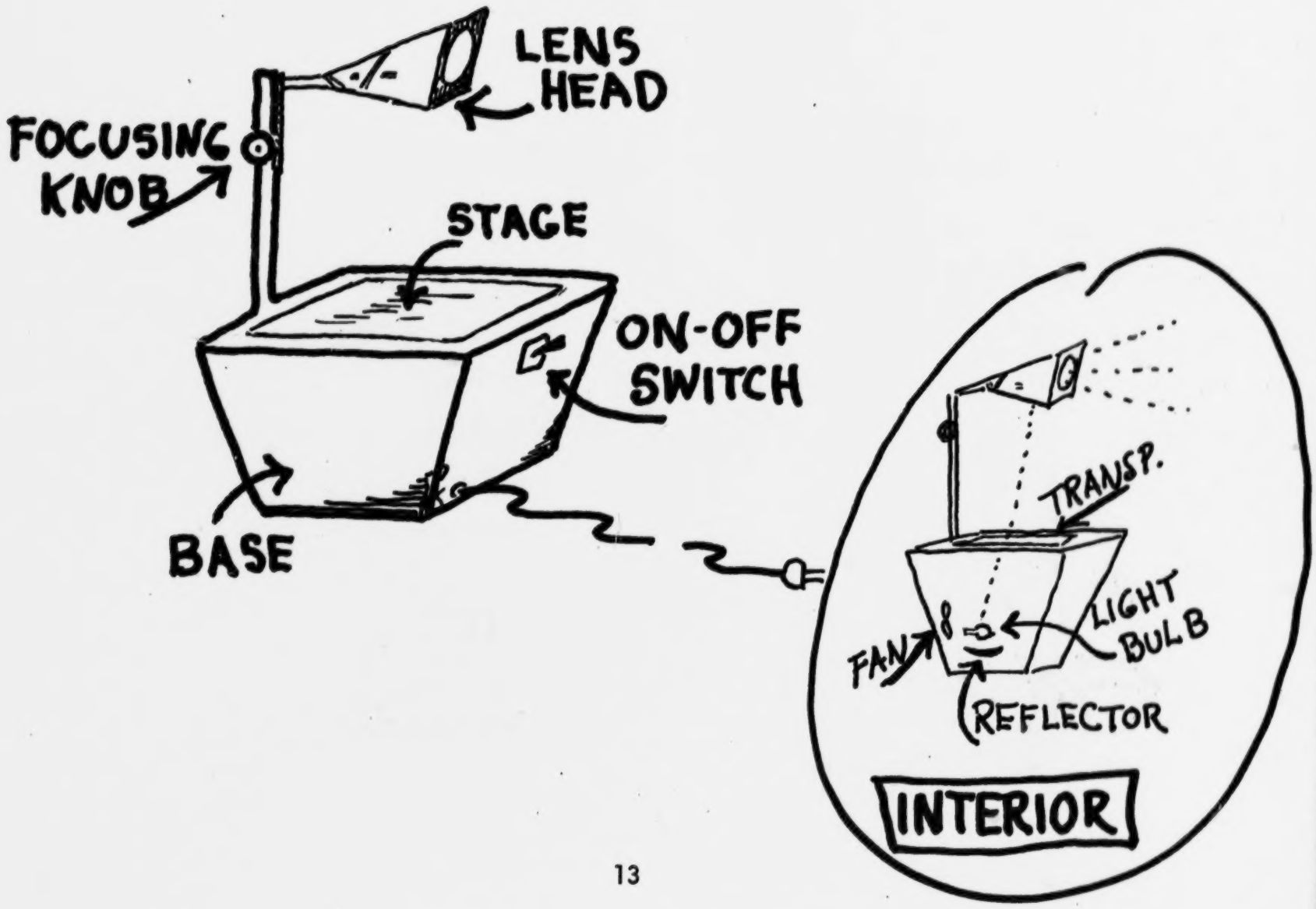
LOOKING AT THE DRAWINGS!

~ OVERHEAD PROJECTORS ~



II. PROJECTOR OPERATION AND SIMPLE MAINTENANCE

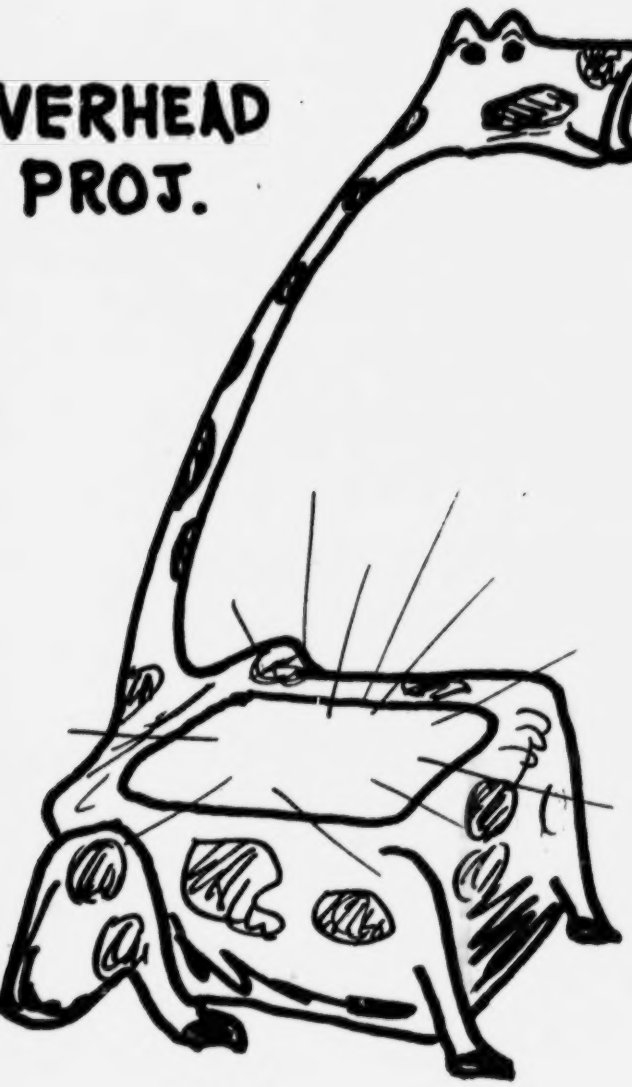
There are many different sizes and shapes of overhead projectors. However, basically all overhead projectors are alike. Most have a box-like base that contains the light source. A translucent cover on the top of this base is termed the "stage." The lens head, with arrangements for tilting and focusing, is supported on a tall thin post. The "on-off" switch is usually on the base sides or top. The cord for electric power is found on the base.


LENS HEAD
FOCUSING KNOB
STAGE
ON-OFF SWITCH
BASE
TRANSP.
FAN
LIGHT BULB
REFLECTOR
INTERIOR

Teachers often confuse <u>overhead projection</u> and <u>opaque projection</u>. Both are valuable teaching tools, however, their characteristics are quite different.

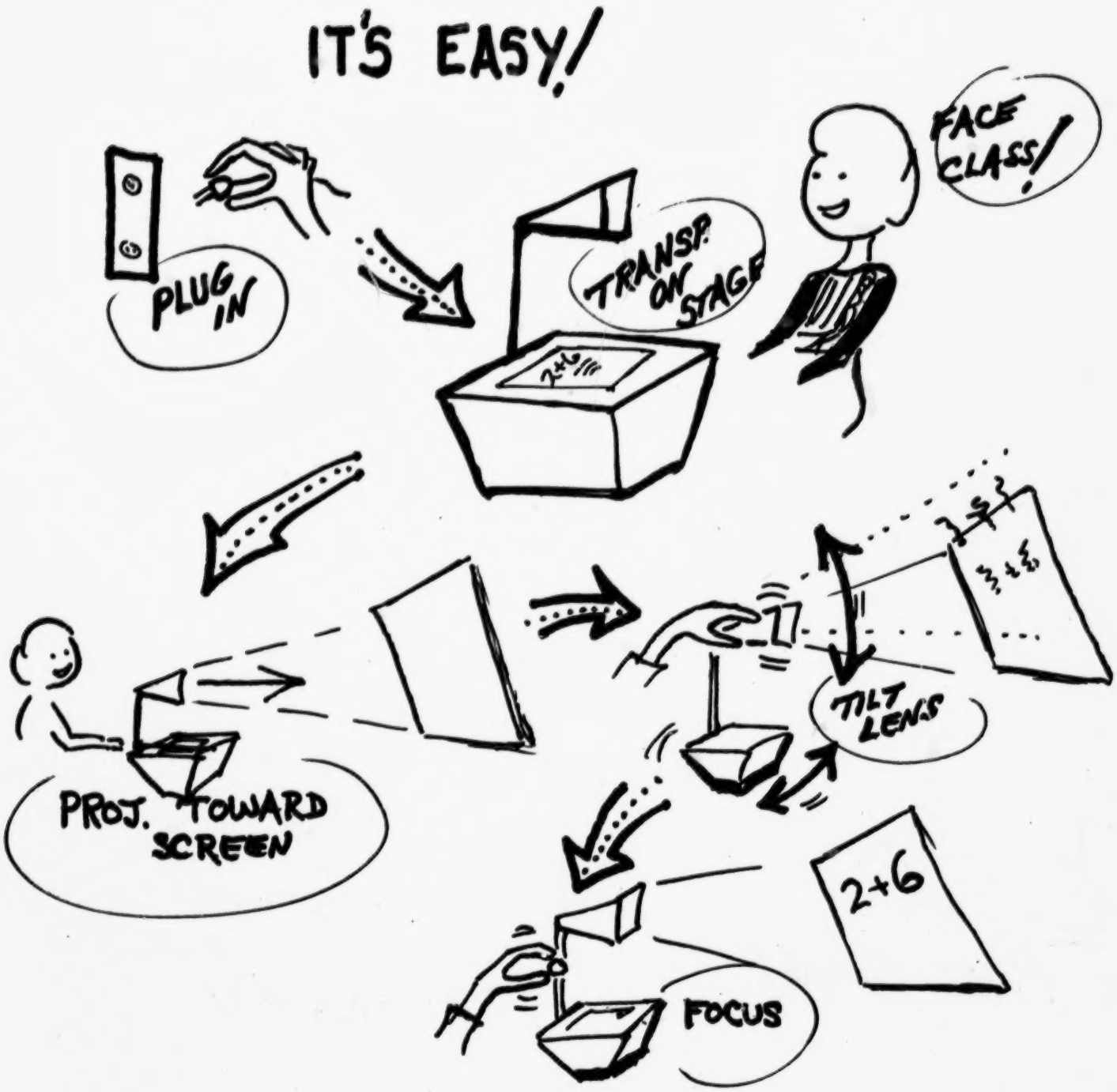
OVERHEAD PROJECTION	*OPAQUE PROJECTION*
1. *Can be used in a lighted room*	1. *Needs a darkened room*
2. *Projects a <u>bright</u> image*	2. *Projects a pale image*
3. *Teacher faces class*	3. *Teacher usually is at back of class*
4. *Quiet, lightweight and relatively cool*	4. *Is heavy, often noisy, and produces considerable heat.*
5. *Requires specially-produced transparent material for projection.*	5. *Will project most regular instructional material without further treatment (books, photos, maps, etc.)*

An eight year old girl said, "I can always tell them apart. An overhead projector looks like a giraffe with a lighted lap! But an opaque projector looks like a big, fat toad!"



OPAQUE PROJ.

Operation of an overhead projector is simplicity itself. The power cord is plugged into any ordinary electrical outlet. A transparency is placed on the stage in such a manner that the teacher, facing the class, can read it. The projector is pointed at the screen and the power switch is turned on. Next, the lens head is tilted up or down until the image is on the screen. Finally, the focusing knob is turned until the image is sharp. The power switch is used to turn the projector off.


IT'S EASY!
PLUG IN
TRANSP. ON STAGE
FACE CLASS!
PROJ. TOWARD SCREEN
TILT LENS
2+6
FOCUS

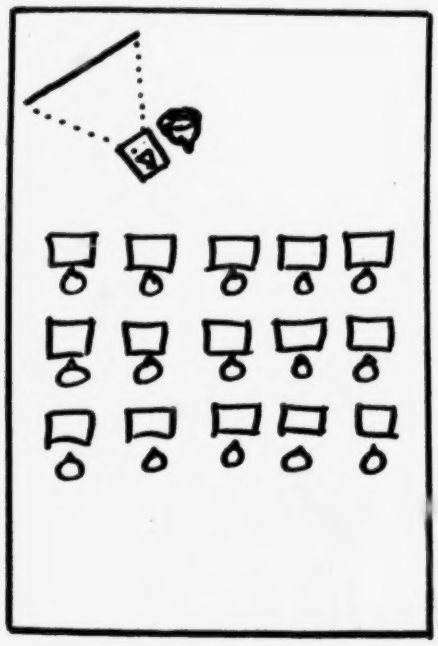
OOPS!
TILT LENS!
TURN TRANSP!

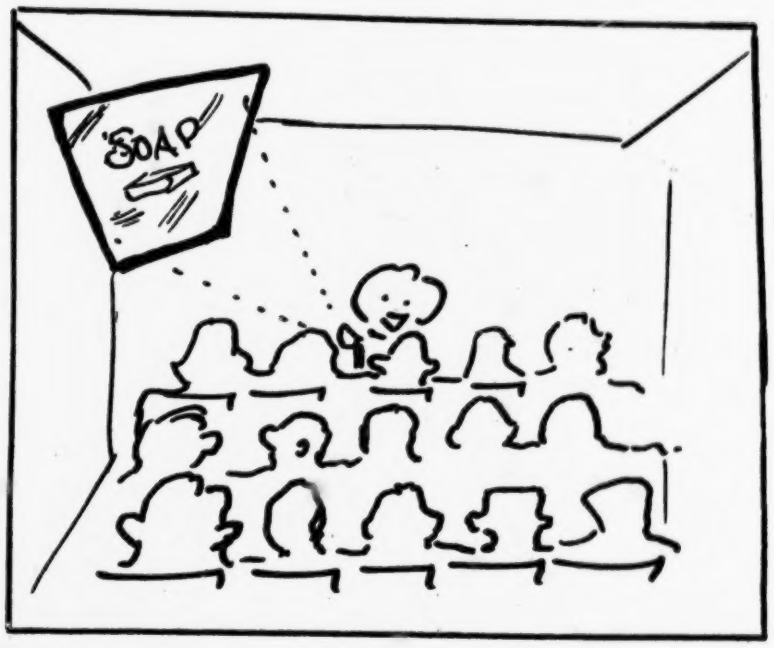
TOO SMALL
PROJECTOR DOESN'T LIGHT!?
MOVE PROJ. BACK!
LAMP MAY BE BURNED OUT - BUT I'LL BET YOU FORGOT TO PLUG IN THE ELECTRIC POWER CORD!

SCREENS

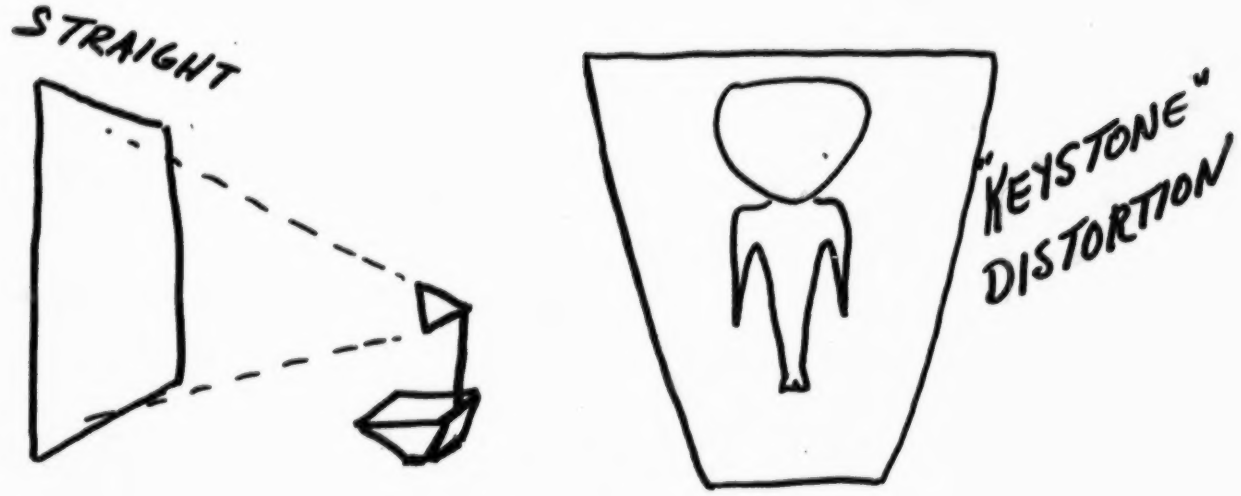
Overhead projectors can function best when the screen is:

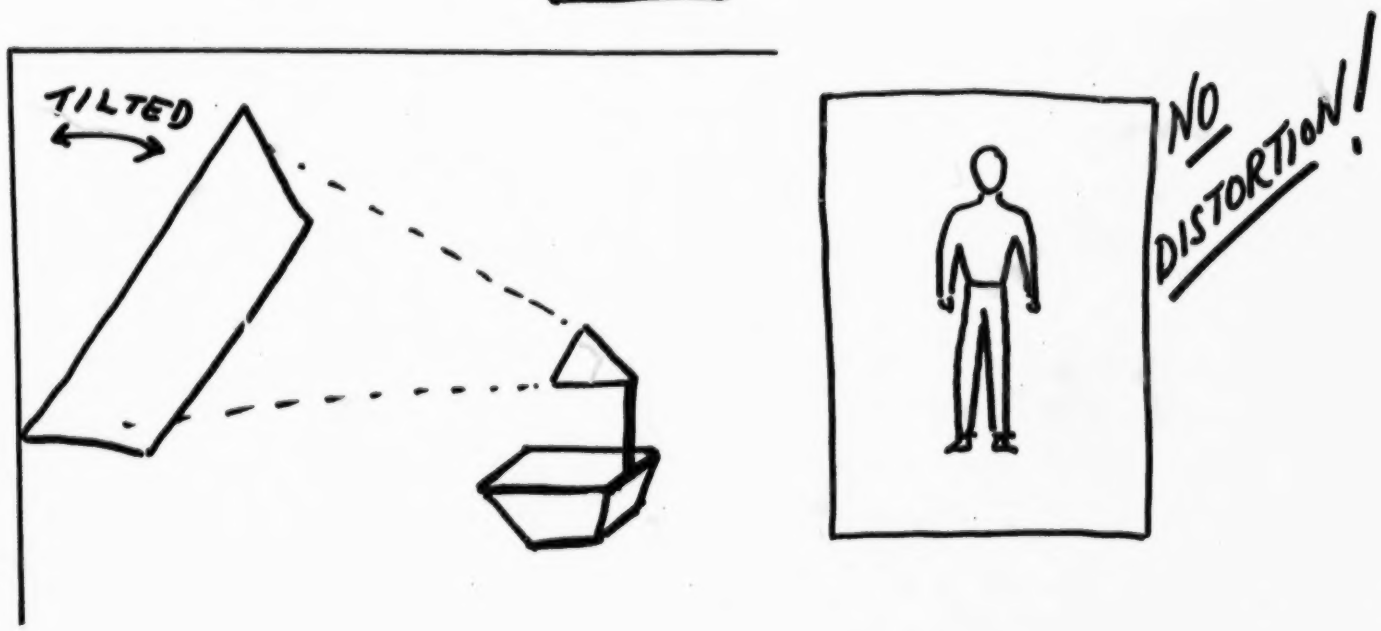
1. Large in size - 70" x 70" - , for example
2. White matte finish (not beaded or other fancy, shiny reflective surfaces)
3. Permanently placed, high to one side of the front center of the classroom.
4. Tilted to prevent image distortion





TILT SCREEN — ELIMINATE DISTORTION





There is no necessity to darken the classroom for overhead projection. However, care should be exercised to prevent extreme bright light from falling on the screen--direct sunlight, for example.

Effectively used, overhead projection is an integral part of the instructional program. This necessitates overhead projectors and screens being available at all times. Too often a teacher must try to borrow an overhead projector only to find it unavailable when it could be most effectively used. Portable screens pose similar problems. The only practical solution is to have a permanently installed screen and an overhead projector assigned to every classroom!

OVERHEAD PROJECTORS AND SCREENS

Permanent	*versus*	*Portable*
1. ALWAYS AVAILABLE		*1. OFTEN NOT AVAILABLE*
a. Projector fits instructional program.		*a. Instructional program must be adjusted to fit availability of equipment.*
2. NO CLASS DISRUPTION		*2. CLASS DISRUPTION*
a. Instruction proceeds smoothly		*a. Moving desks for screens* *b. Noise* *c. Students and teachers trip on screen legs.* *d. Students or audio-visual personal delivering equipment cause distractions.*
3. LESS COSTLY OVERALL		*3. COST MORE OVERALL*
a. Little maintenance cost once projector and screen have been acquired.		*a. Portable screens cost more, deteriorate faster.* *b. Projector lamps may burn out quickly due to constant projector movement.*
4. ALL STUDENTS CAN CLEARLY SEE IMAGES		*4. SCREEN OFTEN TOO LOW FOR ALL STUDENTS TO SEE IMAGES*
		a. Screen wrinkles and keystoning causes image distortion.
5. NO LOST TIME		*5. MUCH LOST TIME*
a. Just flick a switch.		*a. Getting equipment* *b. Moving equipment and furniture* *c. Re-establishing train of thought, quieting class, etc.*

TEACHER MAINTENANCE

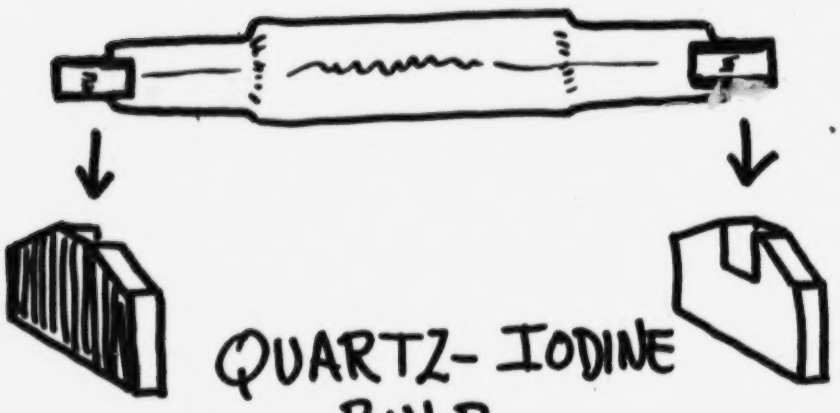
Overhead projectors are amazingly trouble-free. Teachers will be concerned most with keeping the stage and external lens surfaces clean by using a soft, slightly damp cloth.

Overhead projector bulbs are long-lived if the on-off switch is used to turn the projector off. Do not pull the power cord out of the wall socket at this time! A fan will continue to run until the bulb is cool, it will then automatically turn itself off. It will not function if the cord has been removed from the outlet and the life of the bulb will be drastically reduced. Eventually all bulbs burn out, however, and require replacing. Some newer projector models have a spare bulb that can be rotated into operating position by merely twisting an external knob. Don't forget to replace the old bulb later so as to always have a spare ready. Many teachers will call upon the services of their audiovisual personnel to replace bulbs on other models. In the event that such service is not available, the teacher can replace most bulbs as follows:

1. Turn off projector by using "on-off" switch. The cooling fan will usually continue to run.
2. Unplug projector electric power cord from outlet after cooling fan has stopped running.
3. Open door in projector base. It may be on the sides or bottom of the base. On some models the stage itself is the door.

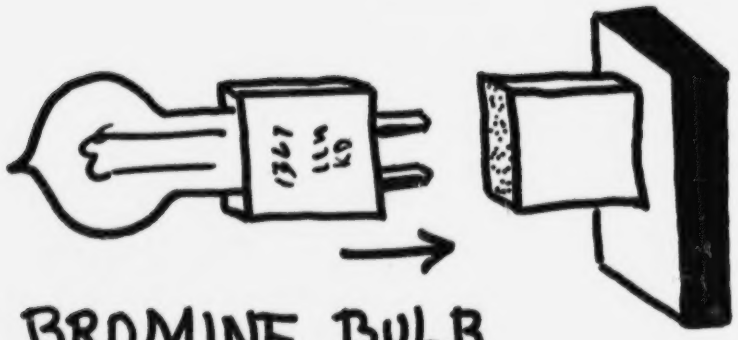
4. Notice position of old bulb so you can put the new bulb in exactly the same way.
5. Remove old bulb. CAUTION--IT MAY STILL BE HOT! A wood pencil may be used to push out hot bromine and iodine type bulbs.
6. Finger prints on the glass surfaces of the bulb reduce bulb light. Hold new bulb only by the base.
7. Be certain the new bulb is the same size, shape and wattage as old, much of this information is printed on the bulb. Audiovisual personnel and suppliers often refer to bulbs as "lamps."

BULBS & SOCKETS



QUARTZ-IODINE BULB

PUSH PIN BULB



BROMINE BULB

MAINTENANCE HELP

Many schools have one person (audio-visual building coordinator, classroom teacher, clerk or custodian) assigned to be responsible for the maintenance of overhead projectors and other audio-visual equipment. Customarily, these people have extra bulbs as well as spare projectors on hand. The special class teacher need only to refer to his maintenance problems to such a person.

If it is necessary to go beyond the school building for assistance, the school principal or secretary should know the procedure to follow. The dealer who originally sold the projector will usually provide emergency service if none is available through regular school channels. If the projector must be sent out of the classroom it is well to tag it with the teacher's name and room number, school and date; as well as a brief statement about the nature of the difficulty.

It should be noted that the special class teacher is not responsible for detailed maintenance and in fact does a disservice to his students by spending much time on it. Rather, he should insist on adequate help from professional audiovisual personnel.

III. TRANSPARENCIES

Transparencies are the instructional materials used in overhead projection and therefore are its most important feature. They are made of transparent plastic. While non-transparent materials (books, photographs, etc.) cannot be used directly, such materials can be used to make transparencies.

An ever-increasing number of commercially prepared transparencies are available. Their technical qualities (color, art work, etc.) are excellent. However, many commercially prepared transparencies contain too much information resulting in a cluttered effect that is often confusing to regular class students. Obviously, the special class student is even more confused by such transparencies. At the present time only a limited number of commercial transparencies have been designed specifically for use in classrooms of the mentally retarded. Factors for teachers to consider in the evaluation of commercially prepared transparencies are covered in the chapter, "Elements of Transparency Design."

Recent SECDC publications have included tear-out pages or separate sheets designed to be used as originals from which the teacher can make his own transparencies. These transparencies relate specifically to the teaching-learning activities described in those publications.

In order to have additional transparencies that meet the specific instructional needs of his students, the special education teacher will often have to make his own.

Hand-Made Transparencies

The easiest method of making transparencies requires only a grease pencil and a sheet of clear plastic to write and draw upon.

In addition to grease pencils, the following will also work:

a. China markers

b. Glazed surface markers - "Dixon Phano" pencils and "Blasidell Du-All markers" work well

c. Wax crayons

d. Porus-tip pens and felt tip markers of the "write on anything" type. Some brand names are: "Marks-a-Lot", "Dri-Mark", "Blaisdell Liquid Tip","Pentel Sign Pen"

e. Special pencils and pens which are labeled "overhead pens", "transparency projection pencils", etc.

Some of the last two types (#d and #e) can be used to make lines that will project a colored image on the screen.

THESE WON'T MARK WELL ON PLASTIC

a. Lead pencils

b. Ordinary ink

c. Ball point pens

d. Chalk

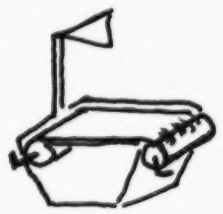
e. Some water color felt tip markers

f. Some water color porus-tip pens

The plastic can be almost any clear plastic sheet. Those used to make transparencies by the thermofax process work well, as does any other heavy plastic sheet such as reclaimed x-ray film. (See the section on thermofax transparencies for additional information.)

Plastic sheets can be cleaned and reused. Grease pencil can be removed with dry "school type" paper towels. Dampened towels will remove water color marks. Towels dampened with lighter fluid will remove waterproof marks.

Some overhead projectors have a roll or plastic that can be cranked across the stage. The teacher writes on the part of the roll over the stage as it becomes filled, she cranks a new clear portion into position.



At times teachers have experienced difficulty cleaning the long rolls. Sometimes the writing becomes smudged in the rolling process, preventing reshowing. Other teachers, however, find this method quite satisfactory.

In emergencies almost any clear plastic can be used. Food bags which have been cut open (Baggies, etc.), food wrapping (Saran Wrap), and pieces of storm window plastic have been used. However, these plastics are not as satisfactory as other types because they tend to disrupt teacher presentations by curling and thus becoming difficult to handle. The images produced are often not sharp. <u>These plastic materials should be considered for emergency use only!</u> Teacher and

student time is too valuable to be wasted on such makeshift measures. Teachers should insist in having proper supplies in ample amounts. Administrators can prevent instructional inefficiencies by budgeting adequate funds for overhead projector supplies.

Most teachers consider hand-made transparencies in the same light as the chalkboard, i.e., as a method of quick spontaneous communication. For permanent, better designed transparencies, they rely upon one of the following mechanical methods.

THE THERMOFAX METHOD

The thermofax* method is most commonly used by teachers to make permanent transparencies. It has other names such as:: "dry heat", "heat transfer", "heat process", "thermal copy", "infra-red", etc.

This method is popular because it is easy, fast, and versatile. A permanent transparency can be made in about four seconds from most book pages, newspapers, and hand written (drawn) instructional materials. The thermofax process, like other machine methods for making transparencies, necessitates starting with an original. An original is simply a piece of paper with the instructional message arranged in the form and manner in which the teacher wishes it to appear on the completed transparency. In other words, the transparency will be an exact duplicate of the original.

*"Thermo-fax" is a registered trade name of the 3M Company. Teachers commonly use this term generically for all brands of heat process equipment and supplies. The ubiquitous quality of this term has led to its use in this publication.

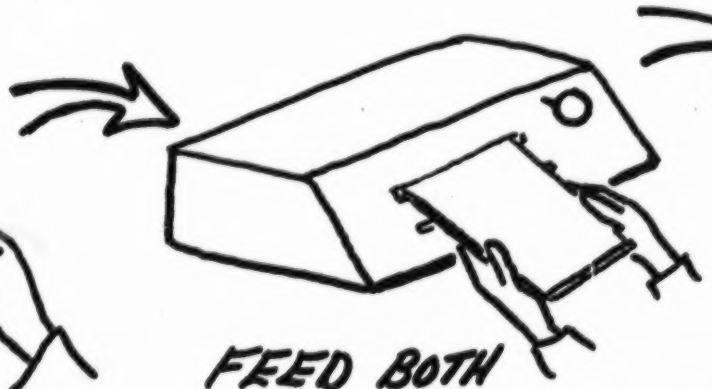
...THERMOFAX METHOD...

PAPER ORIGINAL

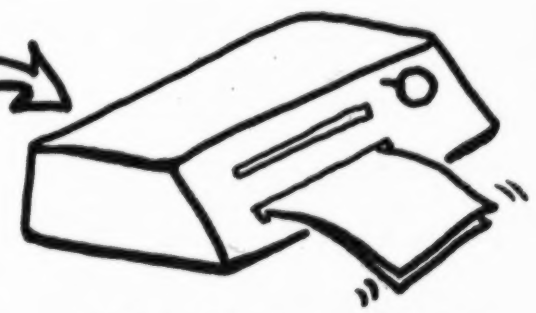
THERMOFAX COPIER

PLASTIC

PLASTIC OVER ORIGINAL



FEED BOTH IN



MACHINE FEEDS OUT TRANSPARENCY!

There are a few limitations to keep in mind. The paper original must not be larger than approximately 8 1/2 x 10 1/2" (it may be smaller, of course). The original must be thin enough to pass through the machine. Very heavy paper, cardboard, or pages still attached to books cannot be used with most machines. Limitations also exist in respect to the kind of printing, and/or drawing that can be used on the original. The thermofax process will reproduce only markings that are in black printers ink, India ink, soft lead pencil (#2) and similar black marking materials. The marks made by ballpoint pens, felt and porus tip markers do not usually reproduce nor does spirit duplicated ("dittoed") material, or colored inks.

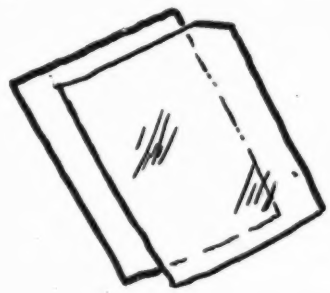
Some special ballpoint pens and porus tip markers are being manufactured for use in this process that do reproduce. Such pens are so labeled. Most teachers use soft lead pencils or India ink. If in doubt it's easy to check a mark's reproducability by simply marking a piece of paper and running it with a strip of plastic (rather than a whole sheet) through the machine.

Originals that won't reproduce (spirit duplications, colored inks, etc.) can be run through a Xerox machine or other electrostatic copier which will produce a black line copy that in turn can be used as an original with the thermofax process.

The plastic sheets (sometimes called acetate or films) used in the thermofax process are especially manufactured for this purpose and are usually packed 100, 8 1/2" x 10 1/2" sheets to a box. NO OTHER PLASTIC SHOULD BE USED! Substitutes do not produce clear, sharp transparencies and will often gum up machines and ruin machine belts.

The plastic has a heat sensitive coating on one side that must be placed against the

original. Most brands have a notch or corner cut off to help in the proper placement of the plastic. Typically, the plastic is placed on top of the original in such a manner that the notch is in the upper right hand corner.



Check the instructions packed with the plastic sheets. Be very certain that the original has no paper clips or staples. Metal objects will destroy a belt inside the machine.

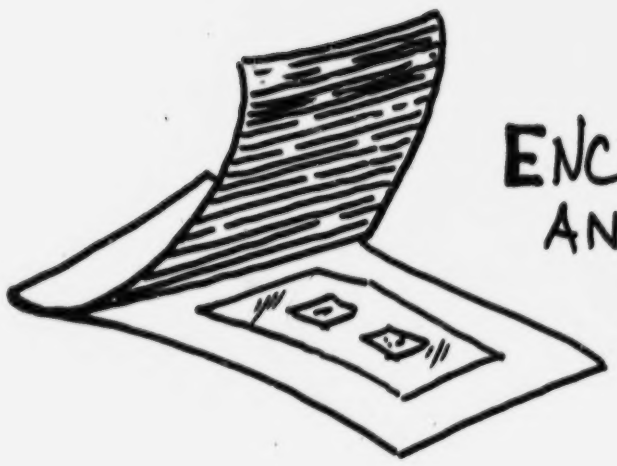
Still held in this position, the plastic and original are fed into the thermofax copying machine. Most machines will start automatically upon insertion of the plastic and original. Inside the machine the original and plastic are subjected to heat from an infra-red light. Marks on the original that are black (India ink or soft lead pencil for example) will get hot, causing identical marks on the heat sensitive plastic, thus forming the transparency. If another transparency is needed, it can be made by using the original again with another plastic sheet.

Machines have settings to control the amount of heat generated. Such factors as varying line voltages, density and type of marking on the original, and how recently the machine has been used, will cause this setting to vary. The correct setting will produce a transparency with a sharp, solid, black image. Too much heat will result in lines that will run together and appear blurred. Too little heat will be evidenced by pale, indistinct lines. Ask someone who

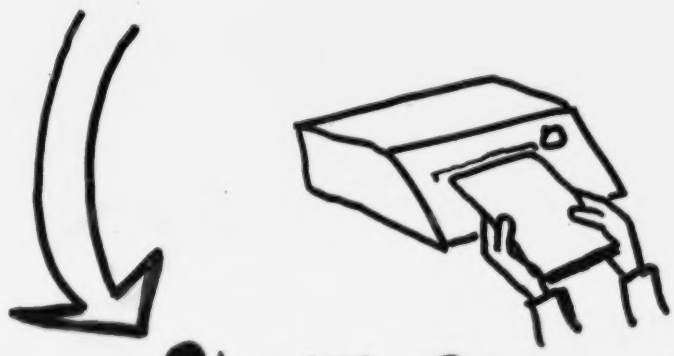
is familiar with the machine what setting to use, or use strips of plastic with an original to test settings until the desired effect is obtained.

When using test strips of plastic, originals that are less than 8 1/2"x 10 1/2" or an original made up of a number of small pieces, e.g., clippings from newspapers, it is desirable to use a carrier to hold these items in position as they go through the machine.

USING A CARRIER



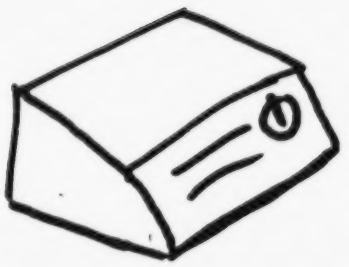
ENCLOSE PLASTIC AND CLIPPINGS IN CARRIER



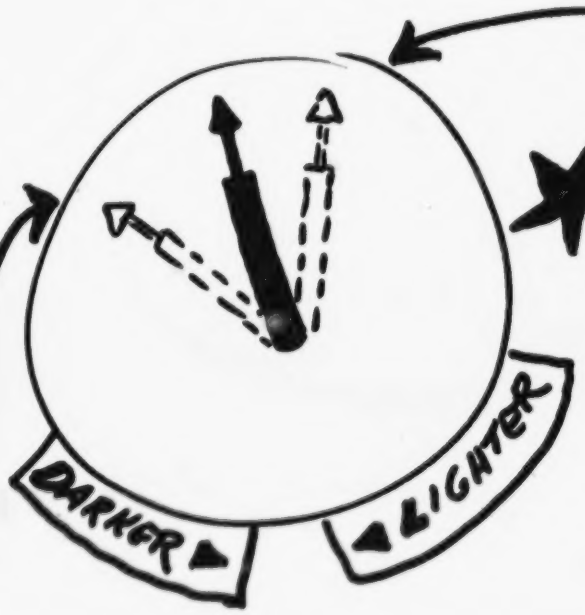
CLOSE CARRIER - RUN THRU MACHINE

OOPS! BLANK TRANS.!

ONE MORE!



TOO LIGHT~
TRY DARKER SETTING



TOO DARK~
TRY LIGHTER SETTING

KEEP TRYING!

Diazo Process

Transparencies produced by the thermofax process project a black line image. Color can be added with felt tip markers or by attaching pieces of special adhesive colored plastic. It is, however, essentially a black line image process. (Other thermofax type materials can be used to produce transparencies with colored lines. This inyolves the use of special plastic sheets, images are not sharp and it is more costly. It is not now in widespread use.)

For those desiring transparencies with colored lines and areas the diazo process is usually preferred. Unlike the thermofax method, the diazo process requires the original to be printed or drawn on translucent tracing paper in very opaque black printers ink or India ink. The making of the transparency from the original is also more complicated than the thermofax method. The original is placed face up against the coated side of a sheet of diazo plastic (film). The coated side is up when the notch is in the upper right hand corner. (The coated side of diazo plastic tastes bitter.) This "sandwich" of the original and a diazo plastic sheet is then placed in a diazo machine. In the machine the "sandwich" is exposed to ultraviolet light. Actual operation of the machine varies with make and model. Follow the manufacturer's recommendations. A typical exposure time is two minutes. After exposure the plastic is separated from the original and placed in a container of ammonia fumes. The fumes will cause a colored pattern to appear on the plastic that is an exact duplicate of the original. Note that the transparency will be clear with the image lines in one color. Diazo plastic is available in a number of colors. To produce a red transparency it is necessary to use a red diazo plastic sheet--green, a green plastic sheet, etc.

Diazo equipment is, at present, not readily available to most Iowa special class teachers. Those institutions that do have such capabilities usually also have a trained operator. It will usually be sufficient for special class teachers to know that diazo originals must be within the 8 1/2" x 10 1/2" size, drawn in opaque black India-type ink on translucent tracing paper. He should also remember that diazo transparencies are limited to a single color per transparency. Armed with such information, the teacher can make his own originals and have audiovisual personnel at the school district or area media center produce the diazo transparency for him.

Lifting

Special class teachers often use the colorful photographs and drawings that appear in current magazines for instructional activities. Unfortunately, the small size of these pictures limit their use in group instruction. It is possible to transform these pictures into transparencies which in turn can be projected to life size. This process of transparency making is "lifting." The name is quite descriptive because the picture is literally lifted off the paper magazine page. Transparencies made by lifting exhibit all the colors and gradation of tone that the original pictures possess.

It should be noted that all pictures cannot be lifted. A general rule is that liftable pictures are always printed on glossy paper. Pictures from such magazines as LIFE, LOOK, NATIONAL GEOGRAPHIC, and McCALLS lift well. A simple test can be made by moistening a fingertip and rubbing it on a white portion of the picture. If a white chalky residue gathers on the fingertip the picture can be lifted. The white substance is clay that holds the ink to the paper.

The plastic used in lifting is different from that used in either the thermofax or diazo processes. It's called laminating plastic and is normally used to protect and strengthen bulletin board pictures and pass-around materials.

A heat press is used to fuse the laminating plastic sheet to the magazine picture. Heat presses resemble the clothes presses used by cleaning establishments. Electrically powered, its only control is a temperature dial. The first step in lifting is to heat the press to 270°--much like preheating an oven.

A piece of laminating plastic is cut slightly smaller than the magazine page (about 1/4 smaller at each edge) and is placed dull side down over the picture. Both picture and plastic should be placed between the fold of a large cover paper; newsprint works well. The purpose of this cover paper is to prevent the laminating film from sticking to the press. Place this package into the heat press and close it. Allow the plastic to heat for about two minutes. Open the press, take out the package and remove the cover sheet. Inspect the laminated picture by slowly tilting it under a bright light. Bubbles and dull areas indicate incomplete lamination. In such cases, return to the heat press for additional "cooking." In some cases, the addition of a pad of construction paper, or a 1/4" sheet of hardboard under the press's foam pad may be necessary to gain complete lamination.

After lamination is complete, remove the cover sheet and place the laminated picture in a shallow tray of lukewarm water. After the picture has soaked for about five minutes, peel the plastic away from the paper page. If it does not easily peel apart, soak longer.

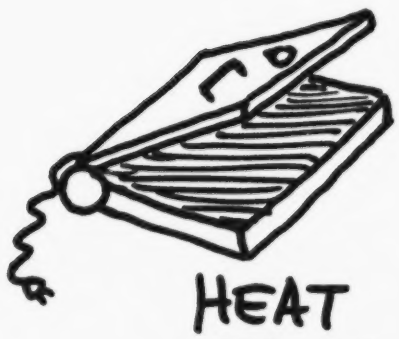
The picture will now be imbedded into the laminating plastic. All that remains is to make the plastic as transparent as possible. Remove the chalky residue that will be on the dull side of the transparency by scrubbing it with a wet sponge. Rinse in water, blot with towel and allow to air dry. Attach the dry lift to a transparency mount with masking tape and spray the dull side with clear plastic spray. This spray will further increase the clarity of the lift transparency. Apply only one complete coat of spray. Additional spray will cause an undesirable pebbled effect. Care should be exercised to prevent runs because of too much spray.

Pictures that are light colored produce the best lift transparencies. Try to handle pictures to be lifted as little as possible to keep them free of oil, dirt, folds, and tears because such things interfere with the transfer of ink to the plastic.

LIFTING

YOU'LL NEED-

A GLOSSY PICTURE



HEAT PRESS

LAMINATING PLASTIC

COVER PAPER

WATER, SPONGE, TOWELS

CARDBOARD FRAME

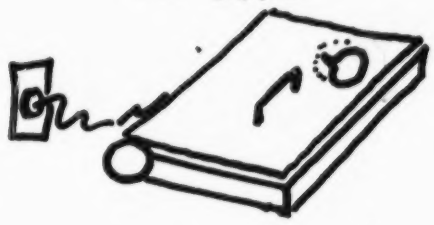
LIFTING

YOU DO~

CHECK COATING

CUT + FIT LAMINATING PLASTIC

SET HEAT TO 270°

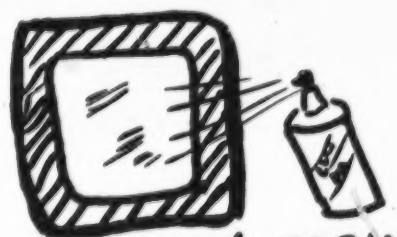


COVER WITH PAPER

HEAT APPROX 2 MIN.

SOAK IN WATER

SCRUB OFF MILKLY COATING



MOUNT & SPRAY

TRANSPARENCY DESIGN

The success special education teachers have with overhead projection varies. The students in one classroom will find overhead projection to be interesting, even exciting, and their teacher may note significant improvement in both their attitudes toward school and in academic achievement. However, a teacher in an adjacent classroom may feel that his students gain very little from overhead projection. This difference may often be attributed to two factors. The first is the teaching techniques used with overhead projection. This will be discussed in the following chapter, "Teaching with Overhead Projection." The second factor concerns the design of the transparencies used. Careful planning of the design of a transparency is the first and most important of a number of steps in producing a good transparency. The actual process of making the transparency is, by comparison, quite minor in importance. Specifically, design is concerned with such things as:

1. What is the topic of the transparency?
2. How does the transparency present the topic--in words, pictures, or both?
3. How many words?
4. What kind of lettering?
5. Is color used? How?
6. How and where are all these things arranged within the confines of the transparencies margins?

Knowledge of design can be used by teachers both to make effective transparencies and to evaluate those that are commercially prepared.

CHOOSING A TRANSPARENCY TOPIC

Many teacher-made transparencies are doomed to failure long before a mark has been made. Poor choice of a topic is often the reason for such failures. All other aspects of transparency design are dependent upon the topic choice.

Overhead projection is best at presenting specific, discrete parcels of information. Further, it is almost always used in conjunction with spoken commentary. To be effective, a transparency must be compatible with this genre. Unlike a motion picture, it is not a medium to present a continuous, flowing, self-contained message.

The first step for the teacher in transparency planning, then, is to choose a topic, i.e., to decide specifically what it is he wishes his students to learn. The danger at this point is to be too vague. For example, "To learn about family finances" is not specific enough. What about family finances? Does the teacher want his students to know about rent, taxes, insurance, purchases, wages, credit or banking? Let us suppose the choice is banking. Now the topic is less vague and its content more restricted. However, there are many areas of banking that are relevant to the needs of special students, e.g., savings, bank loans, checks, etc. If checks is the topic selection, we are faced with still another choice because there are traveler's checks, certified checks, commercial checks, and personal checks. Selecting one of these--personal checks--we

approach still closer to a specific idea to be presented in one transparency. Of course, in some cases, curriculum guides or other directives may reduce this process by stating more specifically what is to be taught.

While good topic selection limits the transparency to one specific idea, the topic alone is an unwieldly thing upon which to build a transparency because it is somewhat remote from the student. A topic merely indicates content; it does not specify what the students' part in the learning of this content is supposed to be. If the teacher can decide what the student will be expected to do, the transparency topic can be presented in a manner calculated to help this student activity to actually occur. In other words, the specific topic must be presented by the transparency with regard to a specific instructional objective.

Instructional objectives should be stated in terms of observable student behavior. The teacher should state what the student should be able to do at the completion of the instruction involving the use of the transparency. For example, the student should be able to list the advantages of having a personal checking account, or be able to properly fill in a blank check. Note that these instructional objectives require the student to do something. It is not specific enough to have the student "know" or "understand" something. For more information on how to state instructional objectives the reader may wish to refer to Robert F. Mager's "Preparing Instructional Objectives," Fearon Publishers, Palo Alto, Calif., 1962, $1.75.

Only after an instructional objective has been stated can the teacher begin to plan a transparency to help the students meet this objective. For example, the instructional objective might

be stated, "The student should be able to properly fill in a blank personal check." This gives the teacher a specific, limited instructional objective toward which to direct his teaching and which will act as a guide in the design of transparencies, as well as other instructional materials. Later the teacher will be able to evaluate the effectiveness of his transparency by noting if the students are, indeed, able to properly fill in a blank personal check.

PICTORIAL FORM

The next step is to analyze the instructional objective of filling in a personal check and determine how overhead projection can best be used to help the student reach the objective. Earlier it was stated that overhead projection is most effective at presenting specific, discrete parcels of information. Now it should be noted that specific, discrete information is in turn most effectively communicated to special students if it is presented in pictorial form to show, rather than tell.

Pictorial form is simply any way of visually expressing an idea other than by many long lines of print (writing). Drawings, cartoons, photos, diagrams, charts, phrases or single words are all examples of pictorial form. This can seldom be done with transparencies that are merely copies of textbook pages. In the example of personal check completion, the teacher must design the transparency to show something concrete about personal check completion. Any of the following would make a good transparency: 1) a blank check 2) a properly filled in check 3) both a properly filled in and an improperly filled in check on the same transparency (for comparison).

Each of these would be concerned with specific and discrete information. They would also be concrete examples that would directly show in pictorial form what a blank check looks like, or what a properly filled in check looks like. The teacher using such transparencies could verbally explain in detail,add information, ask and answer questions, initiate discussions among students, and relate to other media.

Situations will occur when the concept to be taught cannot be expressed in specific, discrete, concrete terms; the concept of legal responsibility of check writing would be difficult to present pictorially. In such cases overhead projection would not be used; rather, other teaching techniques should be employed. While overhead projection is an effective teaching technique, it cannot be universally applied to all teaching-learning situations.

SIMPLIFICATION

In the case of the personal checks, the teacher could simply run a check and plastic sheet through a thermofax copying machine, thus duplicating the check, and have a transparency in pictorial form. This does not always make a good transparency, however, because duplication of reality may be as confusing as reality itself. Checks are usually complicated in appearance, with fancy designs, emblems, mottos, pictures of the bank building, etc. Transparencies made from such checks may tend to confuse the mentally retarded because of their cluttered appearance. However, if the teacher draws a check using the original check only as a model, such distractions can be eliminated. This illustrates the importance of simplification. A good transparency

YOU LEARNED THAT WERE IS USED IN SPEAKING OF TWO OR MORE. GENERALLY THIS IS TRUE, HOWEVER WE MAY ALSO USE WERE AFTER IF OR AS IF, OR TO EXPRESS SUCH THINGS AS A WISH, EVEN THOUGH WE ARE IN SUCH CASES SPEAKING OF ONLY ONE. THEREFORE WE MUST EXERCISE CAUTION WHEN WE ATTEMPT TO EXPRESS SUCH ... IN OTHER CASES IT DOES NOT HOLD THAT THE ABOVE IS ALWAYS...
?!?!
IT'S JUST LIKE THE BOOK! I CAN'T UNDERSTAND THAT EITHER!

OVERHEAD PROJECTION - NOT JUST A BIG BOOK!

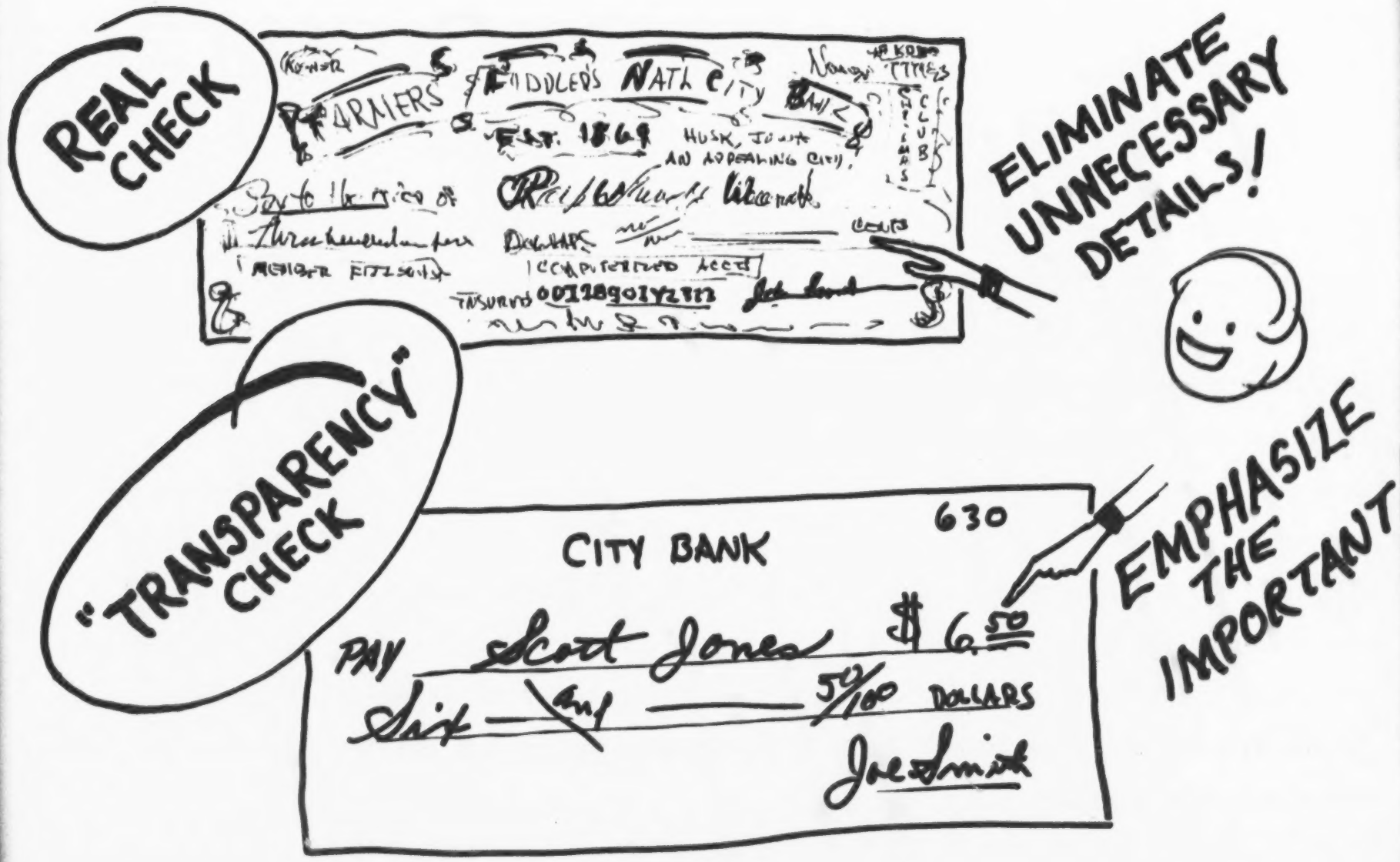
shows only what is necessary to help the student reach the stated instructional objective. Real checks with all their extraneous graphic design, can be introduced at a later stage of instruction to bridge the gap between the fundamentals illustrated by this simple transparency and the use of personal checks in the real world.

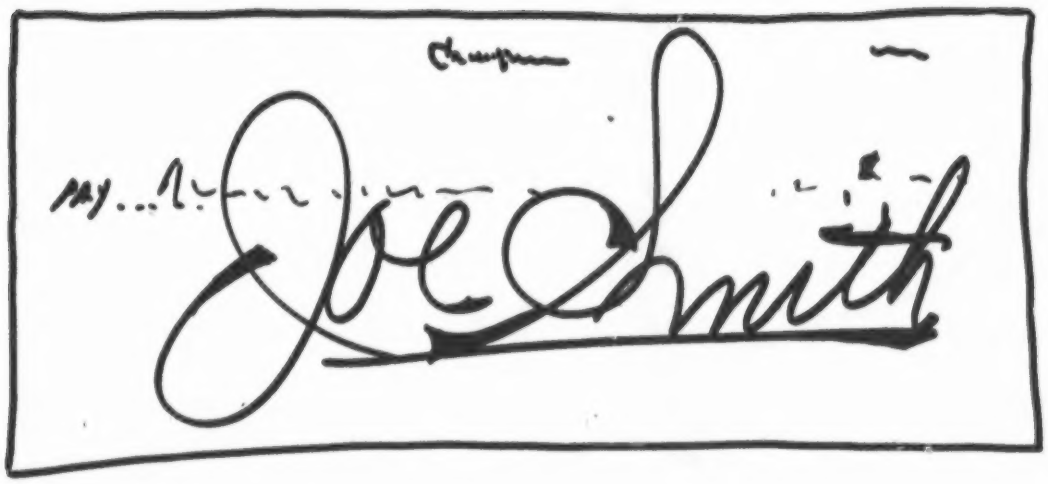
EMPHASIS

The instructional value of a transparency can be further enhanced by emphasis. Emphasis works hand-in-hand with simplicity. Simplicity eliminates the unimportant; emphasis the important. A very simple transparency, while devoid of unnecessary distractions, may be instructionally ineffective because the students find it monotonous and uninteresting. Their eyes tend to wander about the transparency. Concentration is difficult. While the teacher can use a pointer to add emphasis, an effective transparency must contain within itself the quality of ordered importance through emphasis. Detailed suggestions on this and other teaching techniques appear in the next chapter. For example, those features of the check that the teacher regards as the more important can be emphasized by making them slightly larger and/or drawing with a heavier line. Underlining or circling parts of a transparency with a colored felt-tipped marker is another effective emphasizing device. Emphasis must not be so overpowering that reality is destroyed. (See the illustration on page 53).

LABELING

Another useful pictorial technique is to label the parts of a transparency. Labeling serves a two-fold purpose: First, the various parts of the transparency are identified; second, the students learn to associate the abstract word with the concrete thing it represents. Improvement


REAL CHECK
FARMERS
MIDDLERS
NATL CITY
EST. 1869
HUSK, IOWA
AN APPEALING CITY.
ELIMINATE UNNECESSARY DETAILS!
"TRANSPARENCY" CHECK
CITY BANK
630
PAY Scott Jones
$ 6.50
Six and 50/100 DOLLARS
Joe Smith
EMPHASIZE THE IMPORTANT!



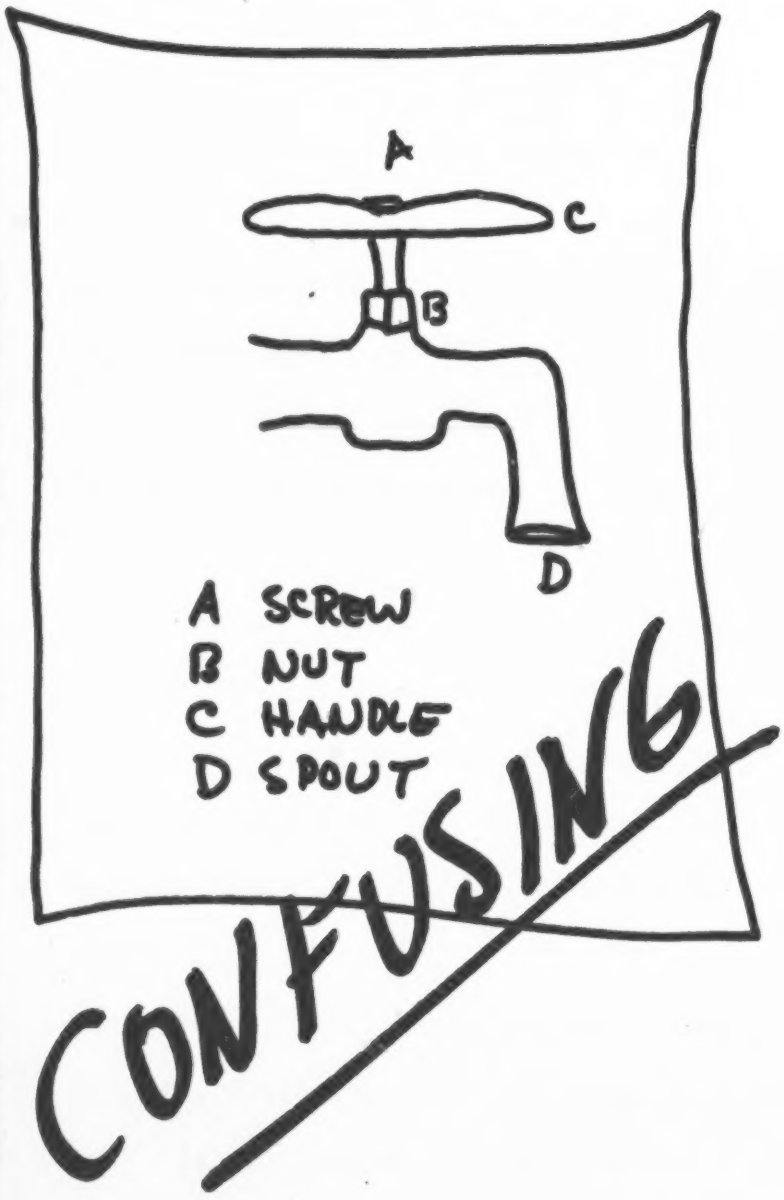
Overpowering Emphasis

in student reading and spelling skills is often a by-product of the use of labeled transparencies. To facilitate the association in the students' mind it is obviously important that the label be placed as near to the thing it identifies as possible.

Teachers commonly use too many words when labeling transparencies. The best labels are single words. Occasionally a phrase may be needed. However, the long complete sentences, so exclusively dear to the hearts of yesterday's English teachers, do not make labels that are compatible with the pictorial character of overhead projection, nor is it typical of much of what mentally retarded adults need to read. Labels should be simple and direct.

Legibility is a paramount consideration in all labeling. It is recommended that labels be printed rather than written. Simple, sans-serif, all capital printing (lettering) is the most legible. Legibility is also affected by the size of the letters; larger letters are more easily read. The minimum letter size is 1/4" high. The most successful transparencies have big bold lettering. This is also another way of emphasizing the transparency message. But teachers of the lower grades may prefer to use lower case letters when labeling in spite of the inherent poor legibility of such letters, e.g., a·d·b·r·n

Characteristically, the assumption is made that young children can't read all capitals. It is interesting to note, however, that many of the labels these children encounter and read in the everyday world are all capitals--BOYS, GIRLS, STOP, GO, WALK, KEEP OUT, TV, PLYMOUTH, PIZZAS.


A
C
B
D
A SCREW
B NUT
C HANDLE
D SPOUT
CONFUSING

SCREW
HANDLE
NUT
SPOUT
CLEAR

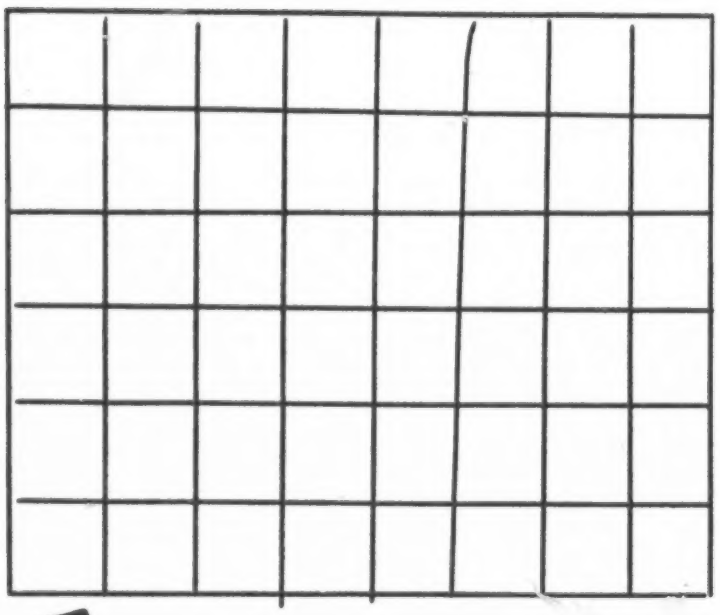
CASUAL EFFECTS

Young people readily respond to the casual, informal lettering of current advertising, Indeed, the success of overhead projection is probably closely related to the ability of the teacher to utilize the many casual effects of modern advertising. Words need not be always placed in straight lines, but can race across the transparency at an angle to the edges. Individual letters within the words can assume a tumbled position. Teachers will profit from viewing children's Saturday morning TV cartoon shows and a daily perusal of the comic strips. These are examples of effective communication by casual techniques. Special class students have been exposed to this casual style and accept it as normal communication. Fortunately, it is both easier and faster to make casually styled transparencies than formal ones.

The first rule of casual drawing is: never make an absolutely straight line if it can be avoided! Once an absolutely straight line is drawn, the teacher has trapped himself. Not only is this first line absolutely straight, but also all the subsequent straight lines must be absolutely straight and usually parallel or perpendicular to the first. This is difficult and time consuming. Even the slightest deviation from this formal pattern will result in a "funny-looking", unsatisfactory transparency.

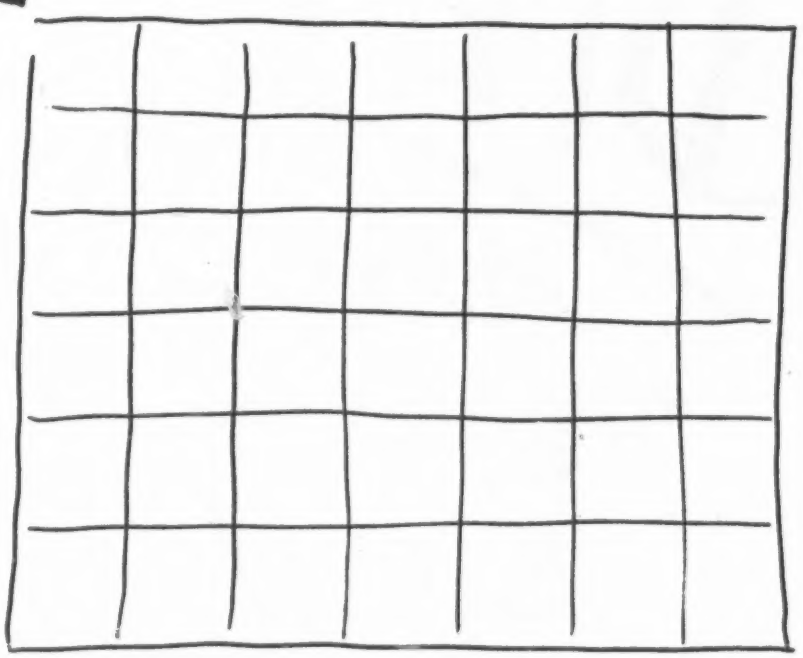
Conversely, if lines are drawn free handed to give a casual effect, there is no need for such exactness. Casual "straight" lines can vary considerably from absolutely straight lines and still give the effect of straightness, providing all such lines are casually drawn. Casual

FORMAL vs CASUAL



NOT PERFECT
LOOKS "FUNNY"
REQUIRED 3 MINUTES
TO DRAW

ALL LINES CASUAL
LOOKS O.K.
10 SECONDS TO DRAW!



MORAL: THROW AWAY THAT RULER!

BE CASUAL

BOLD & CASUAL

Dirt makes people sick.

FORMAL & DULL

drawings exhibit a humanistic quality that is lacking in formal book-oriented instructional materials. Some mentally retarded students with a background of failure with formal instructional materials may tend to be more receptive to casually styled transparencies as opposed to continued use of rigidly formal materials.

BUT I CAN'T DRAW!

Admittedly, most teachers of the mentally retarded are not particularly skilled at drawing. Typically one hears, "Oh, I couldn't draw an automobile!" "Draw furniture? Oh, no!" Fortunately, it is not necessary to possess much drawing ability. Remember, the teacher's goal is to produce transparencies that will communicate to his students. His goal should not be to impress himself or others with his artistic ability. The secret lies rather in the ability to adapt what is already available. For example, newspapers contain a wealth of materials suitable for overhead projection.

Teachers can simply slip out cartoons, maps, or charts from newspapers and make a transparency by running them, with a plastic sheet, through a thermofax copy machine. The black newspaper ink reproduces well on thermofax transparency plastic; best results will be obtained from solid line drawings. Such transparencies are up-to-date and often more in tune with today's students than the drawings in textbooks.

PASTE UPS

Another technique is to combine several newspaper clippings to make one transparency. A grocery advertisement might provide clippings of pictures of apples, bananas, and other fruit.

2

A recipe column could provide a headline, "Fruit Salad." This headline and the fruit drawings could be pasted in an eye-pleasing arrangement on a piece of ordinary 8 1/2" x 11" typing paper. This "paste up" could then be used as a master to make a transparency that would show the ingredients of a fruit salad. Many teachers keep a file of paste-up materials in anticipation of their future needs.

TRACING

The use of paste ups is a somewhat limiting process because the pictures available in newspaper and other sources are not always suitable for transparencies. For example, pictures in colored ink and photographs cannot be used in paste ups because they will not reproduce satisfactorily by the thermofax process. Then too, sometimes pictures are, as in the case of personal checks mentioned earlier, too cluttered with details to make a simple, direct transparency. These problems can be solved by tracing. There are two general tracing methods. One is to place a piece of typing paper the same size as the transparency plastic sheet on top of the original. Both are then placed against a window or on a lighted tracing table. The teacher then draws on the paper with a soft lead pencil by tracing only the desired parts of the original. The other tracing method consists of rubbing the back of the original with soft lead pencil, placing this original on top of the paper and tracing on the original. A piece of carbon tracing paper may be used instead of the pencil rubbing. In either case, it is advisable to go over the traced lines with a soft lead pencil to darken them after the original has been moved.

More creative tracing can be done by combining tracings of parts of different pictures. A child's head can be traced from one source and then the paper with the child's tracing can be

moved and placed over a drawing of a dog. The dog is then traced next to the child's head. The resulting drawing could be used as a master to produce a transparency about pets and children.

Tracing need not be confined to copying pictures from paper. Real objects such as scissors, leaves, feathers and coins can be drawn around. Those objects that are too thick to draw around - e.g., human head, can be placed in front of a bright light source and the resulting silhouette can be traced.

ENLARGING AND REDUCING

Obviously, direct tracings are always the same size as the pictures from which they are traced. If the teacher needs a drawing larger or smaller than the original, he will need to resort to some other method of drawing. Opaque projectors can be used to enlarge by projecting a tracable image of the original on a piece of paper that has been taped to a wall. Moving the opaque projector back or forth from the wall varies the size of the image. On some machines it may be necessary to move the lens itself when making only very slight enlargements. This is usually just a matter of loosening a screw on the lens holder.

Large pictures can be reduced by using an overhead projector in a sort of reverse manner. The picture to be reduced is taped to a wall so the middle is about four to five feet above the floor and illuminated with bright light (a slide projector, photoflood lights, or outdoor flood lights work well). The overhead projector is placed squarely in front of the wall and a piece of paper is placed on the overhead stage. Next, the lens is tilted and focused to produce a traceable image on the paper. The size of the reduced tracing is dependent upon the size of the

original and the distance between the original on the wall and the projector.

Another mechanical method of reduction and enlargement involves the use of a pantograph. This device consists of a number of adjustable hinged arms connected to two drawing pointers. When one pointer traces the original the other pointer draws an enlarged or reduced duplication of the original. The size of the tracing and direction of change depends upon which pointer used to trace and the adjustment of the arms. It is also possible to enlarge and reduce pictures without any of the above equipment. To enlarge a picture simply follow this procedure:

1. Regard the original as a rectangle. If it is not rectangular, draw a rectangle around the original picture that conforms to the original's general shape.
2. Place the original on the upper left hand corner of a large piece of paper.
3. Draw a diagonal line from the upper left hand corner across the original through the lower right hand corner and continue it across the large paper.
4. Select a point on this diagonal line at the location that will be the desired width and length of the enlarged drawing.
5. Draw a horizontal line left from this point. This line should be perpendicular to the left edge. Draw a vertical line up from the point. This line should be perpendicular with the top edge. The result will be a rectangle larger than the original, but in the same proportion.
6. Erase the diagonal line and remove the original.
7. Divide the original in half vertically.
8. Divide the original in half horizontally.

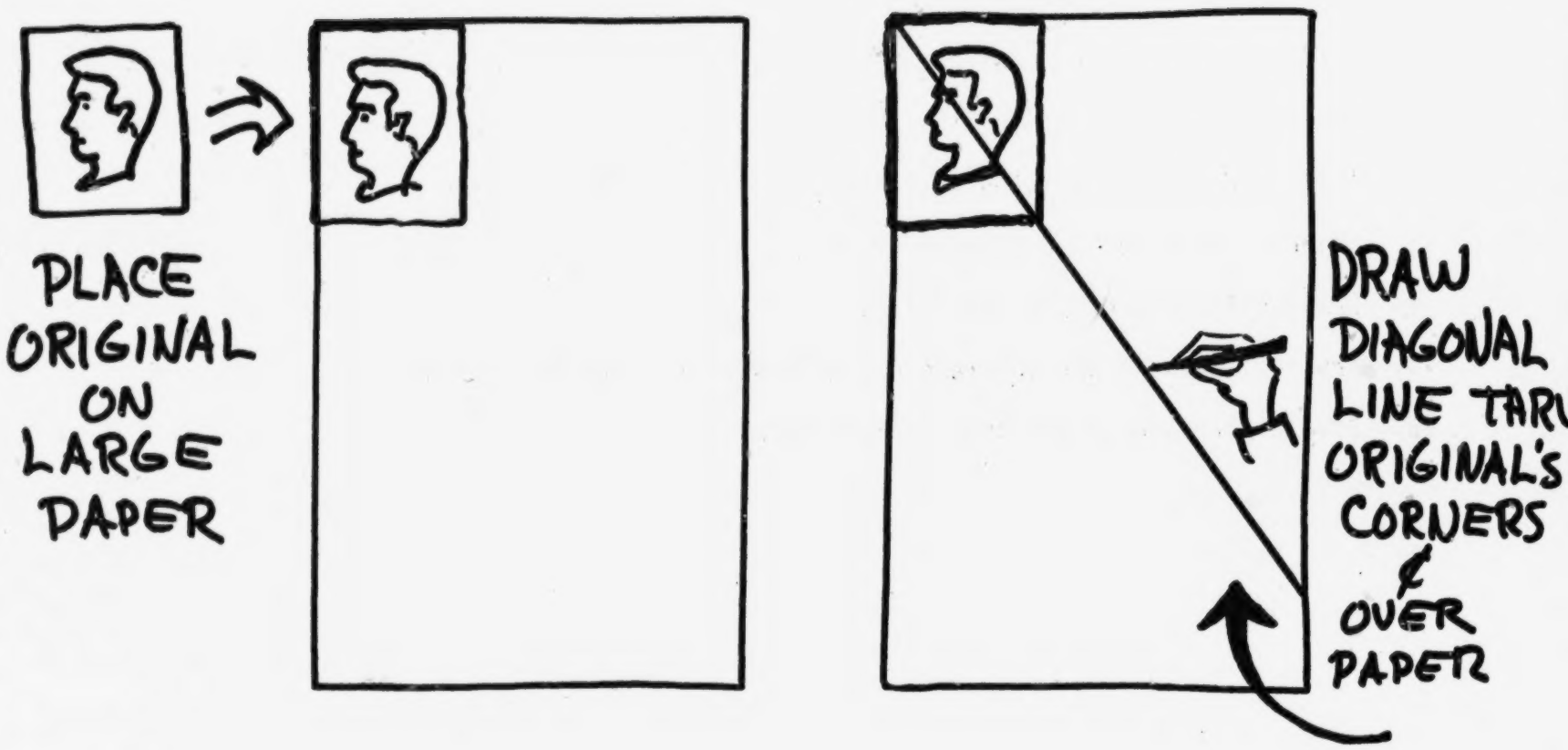
9. Re-divide each of the resulting squares in the same manner.

10. Using this grid as reference point draw in the enlarged version.

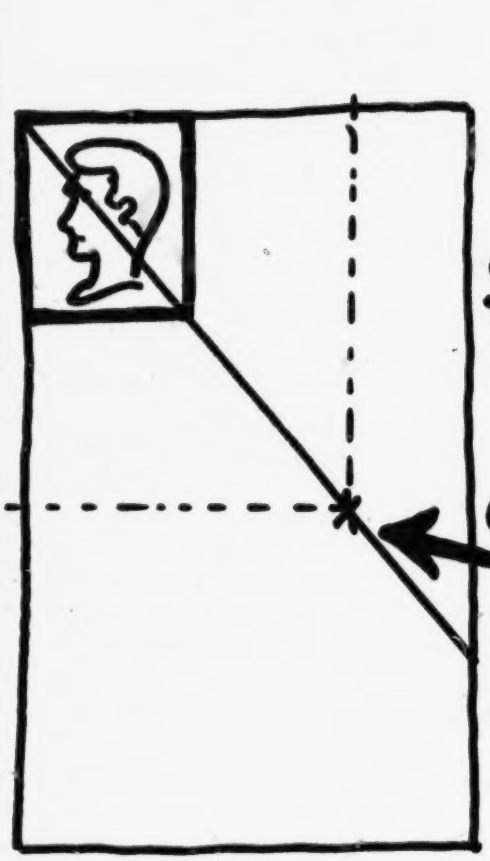
To reduce a drawing this procedure is reversed:

1. Place a small rectangular piece of paper of somewhat larger size than desired for the reduced drawing, on the top of the large original's upper left hand corner.
2. Draw a diagonal line from the lower right hand corner of the large original to the upper left hand corner, drawing over the small blank paper.
3. Select a point on the line on the small blank paper to determine width and height as before.
4. Draw vertical and horizontal lines.
5. Erase diagonal lines and remove small paper from large original.
6. Divide both papers and proceed as before.

... ENLARGING ...

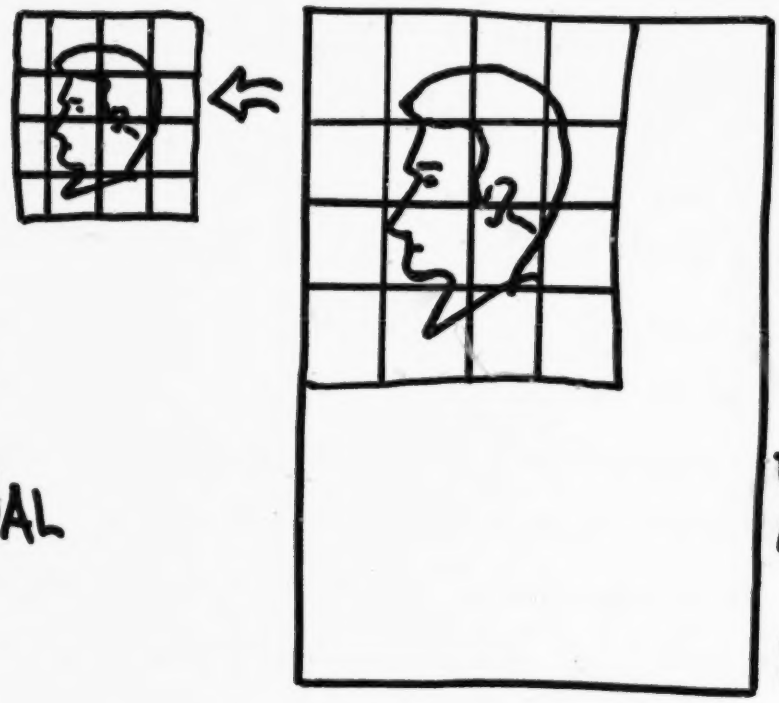

PLACE ORIGINAL ON LARGE PAPER
DRAW DIAGONAL LINE THRU ORIGINAL'S CORNERS & OVER PAPER

... ENLARGING CONT'...



SELECT DESIRED POINT ON DIAGONAL

DRAW HEIGTH & WIDTH LINES



DIVIDE ORIGINAL & NEW PAPER WITH AN EQUAL NUMBER OF SQUARES

DRAW ENLARGMENT USING SQUARES AS A GUIDE

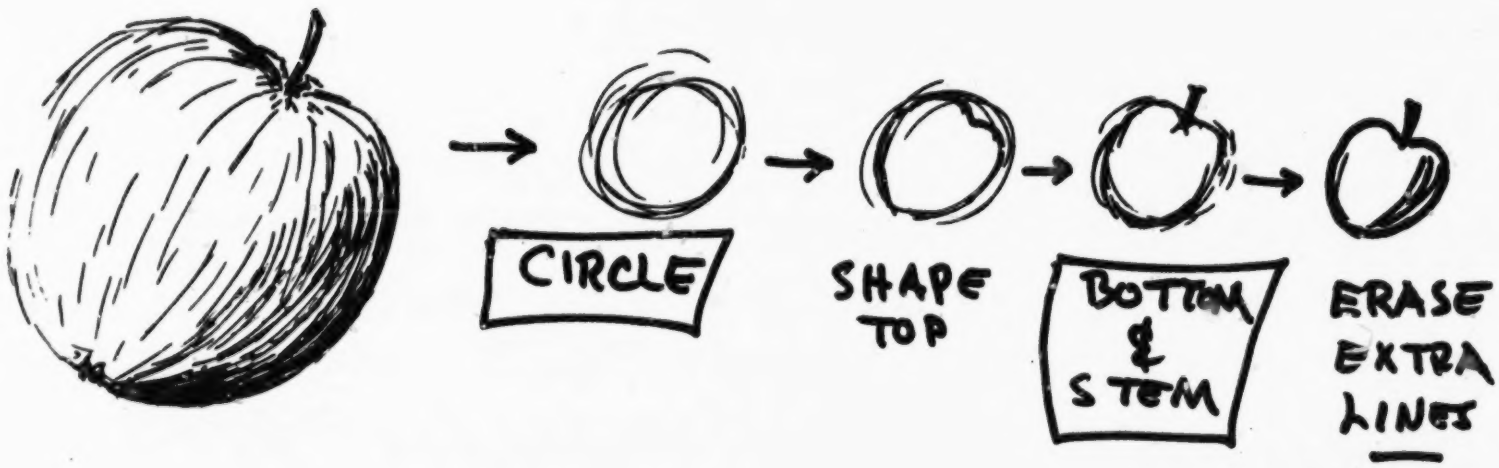
FREEHAND DRAWING

Occasions will arise when the teacher will not be able to produce the desired transparency by paste-ups, tracing, or reducing, and will have to rely instead on his ability to make a freehand drawing. An easy way to produce such drawings is to start by visualizing the general shape of the object to be drawn. All objects can be considered to be a rectangle, circle, triangle or combination of these shapes. If the teacher can see the object or a picture of it he can begin by concentrating on the main mass of the object to help determine its general shape. Minor details are completely ignored at this stage. For example, the general shape of an apple resembles a circle. The teacher starts to draw an apple by sketching a circle with a number of very light pencil strokes. It is important to note that no attempt should be made to draw a precise circle with one continuous, bold line. The purpose is to merely suggest the shape of a circle with a number of overlapping, indefinite lines. It may be necessary to draw a considerable number of lines in the same area before a circular shape is accomplished. Next, this shape can be modified to represent the indented areas on the top and bottom of the apple. Finally the smaller details such as the stem can be added. The entire process is simply a matter of drawing the big, obvious things first, followed by other features in order of their decreasing size and prominence.

It is helpful, in making the initial parts of a drawing, to look at the object through partly closed eyes, i.e., to squint as one does when in the presence of excessively bright light. This permits the teacher to see only the main shape and its most prominent features. By gradually

FREEHAND DRAWING

FROM REAL OBJECT...



reducing the amount of squint, details become progressively apparent, and can be sketched in turn. If the teacher has neither the real object nor a picture to use as a guide, it will be necessary to mentally visualize the object in steps from the general shape through increasing detail. This is a bit difficult, but is a skill that can often be quickly developed by first drawing from pictures, then real objects, and finally by mental visualization.

It should be noted that transparencies drawn with heavy, dark lines project the most communicative images. It is not necessary to draw in all the details. Once the drawing unmistakably looks like the object it portrays, it is neither necessary nor desirable to draw additional details. This is a further example of the need to simplify and emphasize.

LAYOUT

Layout refers to the arrangement of the various parts of the transparency. Layout is concerned with such questions as: Where on the transparency will the lettering and illustrations be placed? How large should they be? How far apart?

To be an effective instructional message, a transparency should be so arranged as to attract and hold the students' attention, be pleasing to his eye and comprehendible to his mind.

SPACE AND SPACING

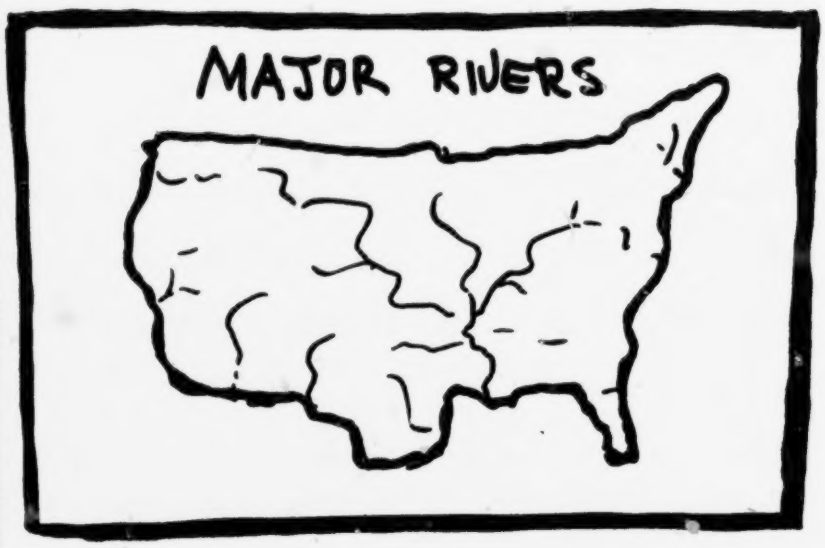
The most important thing to remember in layout is not to crowd too many things together. Those transparencies that are the most effective have one basic layout characteristic--they contain a good deal of blank space throughout and therefore do not appear crowded. Too frequently both teacher made and commercially produced transparencies are packed with all sorts of

illustrations, lettering, and symbols. In an attempt to "tell all", everything related to the topic is jammed within the edges of one transparency. Even after this has been done, the felony of clutter is further perpetuated by the "don't waste space" syndrome, which insists that any blank space must be covered with something. It must be remembered that the true value of a transparency lies in how much it helps students to reach an instructional objective. Those teachers who design crowded, cluttered transparencies in an attempt to be "saving", are in reality, extremely wasteful. Such transparencies are confusing to the special class student, and may in fact even further increase his difficulties in reaching a stated instructional objective. Blank space should be considered to be a vital part of any transparency.

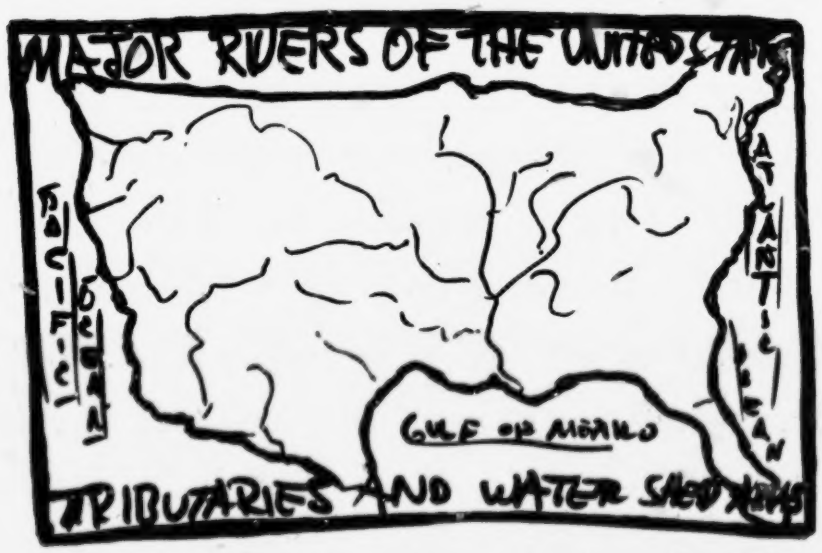
A typical transparency is approximately 8 1/2" x 10 1/2" (if mounted on a frame, about 7 1/2 x 9 1/2"). Obviously, all of the message that this transparency is to show must be placed within this limited area. By following the procedures previously outlined, i.e., reducing the subject to be taught to one single topic, then stating an instructional objective in terms of student behavior, and finally selecting one idea a transparency could show to help the students reach this objective, the teacher has greatly simplified the problems of layout. This process will substantially reduce the possible content of what he will want to place within the confines of this one transparency.

The first consideration of space allotment should go to the margin areas. There should be a blank marginal area on all sides of the transparency. Specifically, there should be a minimum blank margin of 1/4" on the sides and 3/8" on the top and bottom. Margins of 1/2" and 3/4" or

..GOOD SPACING...



....CROWDED....



more, are better. Such marginal areas give a feeling of unity to the transparency. Conversely, if the illustrations or lettering go out to the very edges, the visual will tend to "explode" apart. The student's eyes will not concentrate on the transparency, but will constantly be directed beyond its boundaries.

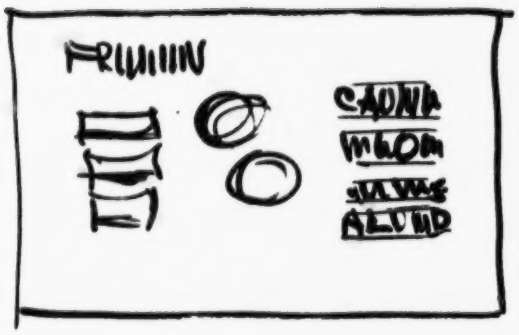
SIZE

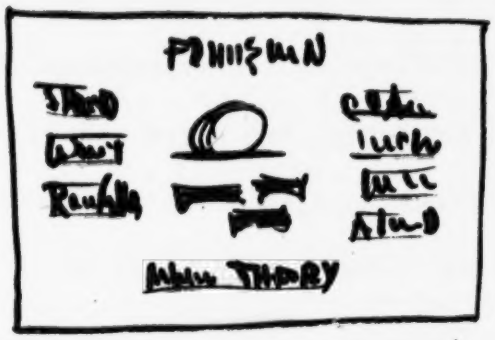
Size considerations go hand-in-hand with spacing considerations. The overall size of the total visual obviously must be less than that of the entire transparency area in order to fit the confines of the transparency. Marginal and internal space requirements further reduce the area available, and hence the size, of illustrations and lettering. Legibility considerations on the other hand, dictate certain minimum sizes. Lettering should be at least 1/4" high. Most individual illustrations must be at least one inch in diameter. In both cases, larger sizes will usually prove to be more satisfactory. This dichotomy of size and space requirements is further evidence of the need for careful pre-planning in topic selection and in the stating of instructional objectives to produce simple, direct, and discrete messages for use in overhead projection. In addition, size and space requirements dictate that illustrations be boldly executed and free from unnecessary detail to be as comprehendible as possible. This involves the factors of simplicity and emphasis noted in the discussion of pictorial form earlier in this chapter.

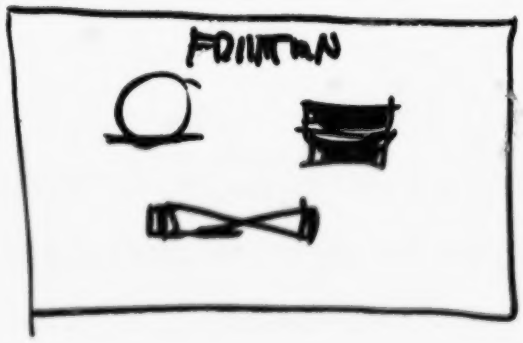
THUMBNAIL SKETCHES

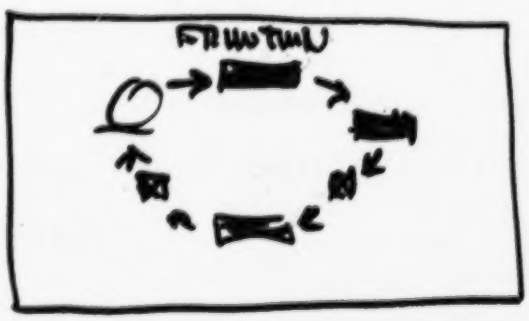
The overall layout of a transparency can be quickly arrived at by making thumbnail sketches. These are small, highly simplified drawings by which the teacher can try out various arrangements, selecting the one that he deems most appropriate.

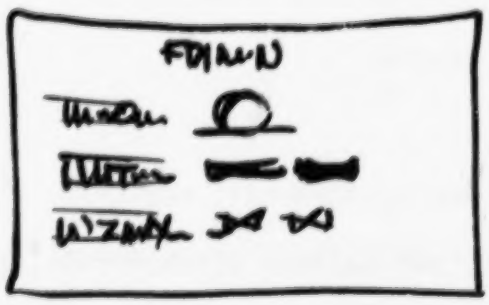
THUMBNAIL SKETCHES









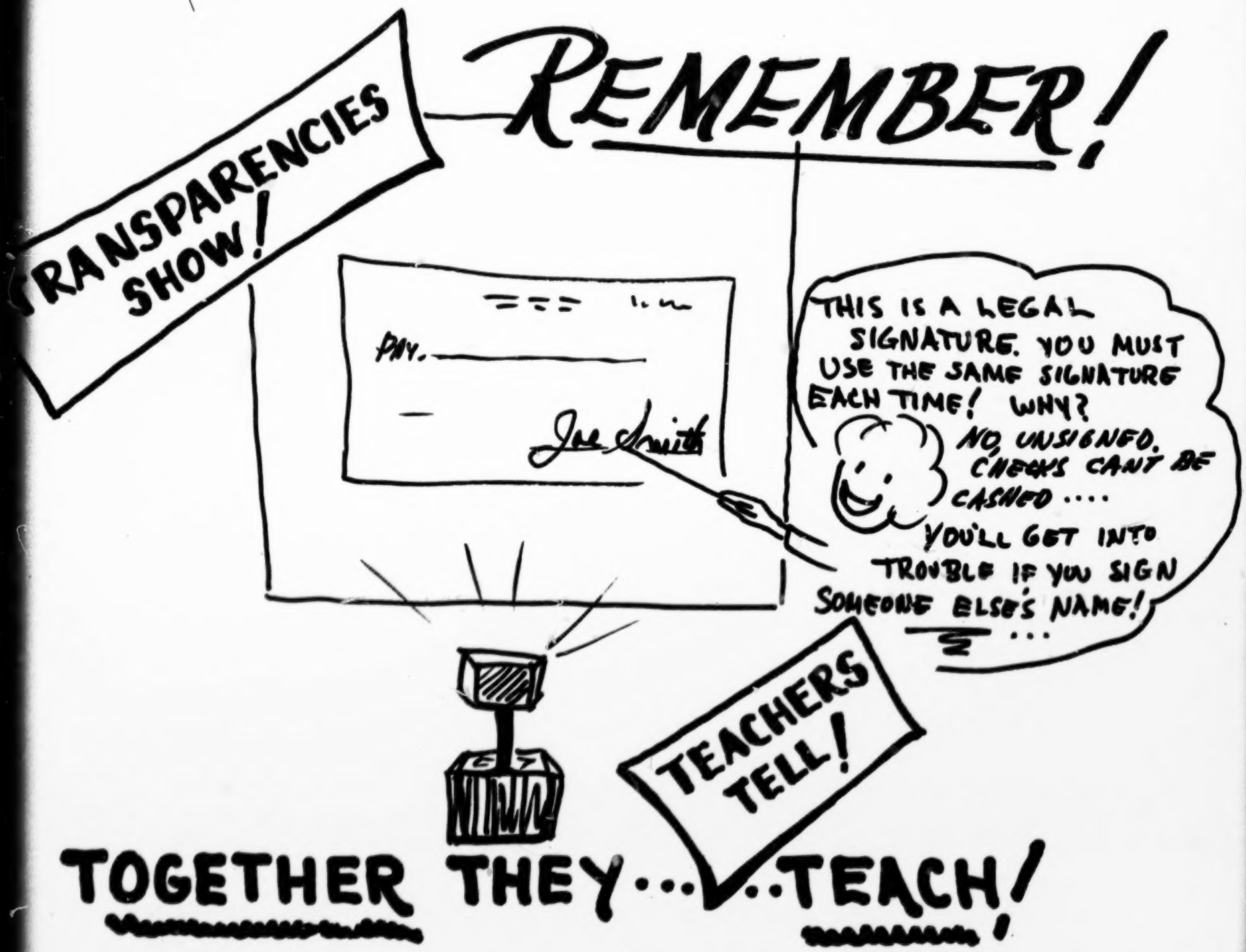


PUNCTUATION

Teachers are, by training and experience, cognitive of the importance of punctuation to clear communication. Transparencies, as well as the printed page, require punctuation. However, because of its non-lineal, and predominately non-verbal form, the punctuation requirements of transparencies are quite different. As a result, some modification of punctuation practices must be made. The most easily comprehendible worded messages are those that are lettered in short lines. Complete sentences are often not necessary, indeed, much transparency verbalizing should be single words or short phrases. If a teacher finds himself using many long lines of words, it would be well for him to stop and reorganize the verbalige into a more condensed form. This can usually be done. However, if no progress can be made in this direction, the teacher should seriously consider using a different medium to present the message to his students. Remember, transparencies show, long lines of words tell. Telling is better left to the teacher, audio tapes or handouts.

By placing words or phrases on separate lines, they are effectively punctuated without the need for periods, commas, etc. In other words, placement and space become punctuation devices. Dashes and ellipses are effective ways to link words or phrases and to show a continuous flow of similar thought. Exclamation points add a vital effect to printed messages and should be used freely. By the same token the message content and wording should be selected in such a manner that the use of exclamation points is possible. The incorporation of onomatopoeic words with casually styled lettering is one such example. Many of the illustrations in this publication show suggested arrangements of typical transparencies. Please note the use of one idea only for each

transparency, and the generous use of space in margins and throughout the visual areas. The reader's attention is also directed to the placement of lettering and punctuation use.


REMEMBER!
TRANSPARENCIES SHOW!
PAY.
Joe Smith
THIS IS A LEGAL SIGNATURE. YOU MUST USE THE SAME SIGNATURE EACH TIME! WHY?
NO UNSIGNED CHECKS CAN'T BE CASHED ....
YOU'LL GET INTO TROUBLE IF YOU SIGN SOMEONE ELSE'S NAME! ...
TEACHERS TELL!
TOGETHER THEY... ..TEACH!

V. TEACHING WITH OVERHEAD PROJECTION

Modern teaching involves the integrated use of many media. Each medium has its own characteristics, and hence can be used most effectively in those specific situations where these characteristics have the greatest value. Overhead projection is an extremely versatile medium. It is readily adaptable to the work of special class students at all ages, subjects and levels of ability. It is, however, only one technique in a "media mix." Much like a good actor, overhead projection fills a role. At times it is on stage, "up front," acting as the main instructional mode. At other times it plays a supporting role. On other occasions it should be "in the wings." The teacher, acting as the director, determines these activities. Because he can also write the script (the verbal commentary) and design the scenery (the instructional materials), the teacher controls overhead projection. Teacher control is the key to overhead projection use.

CONTROL

Through selection of commercially prepared transparencies and the designing of his own, the teacher controls the instructional materials to be used, adapting and fitting it to his students.

Transparencies can be used in any order the teacher desires. The time spent on each one, i.e., the pacing, can also be controlled; slow, fast, repeat, explain, question, and reinforce, all fit into a natural, teacher-controlled atmosphere.

Because the teacher faces his students and can maintain direct eye contact, he is in a position to exert control on the students' behavior. Students are less likely to misbehave when

they realize that the teacher is looking at them. Developing misbehavior can often be squelched by a well-directed frown. The mere act of turning the overhead projector on will usually cause the students' attention to be directed toward the screen. Minor discipline problems can also be often cured by abruptly turning off the projector. This will tend to stop their distractive behavior and return their attention to the teacher. Contrast this to chalkboard use that requires the teacher to turn his back to the class.

By use of eye contact a sensitive teacher can gauge his students' comprehension of what is being taught. A shrug of shoulders, an open mouth, a gradually increasing open-eye stare, and other signs denoting confusion can be noted as they occur. As a result of these reactions, the teacher can modify the instruction by re-explaining, giving examples, etc. He will also be able to quickly acknowledge the student who wants to ask a question, or add comments and thus find added opportunities to reinforce student-teacher interaction.

Eye contact also permits the effective use of the greatest of all instructional techniques, the very personal "he smiled at me."

POINTERS

A pointer can be used to direct the students' attention to specific parts of a transparency. The teacher can simply use an index finger as a pointer by placing it on the transparency, its enlarged silhouette will be projected on the screen. An ordinary lead pencil works better because of its sharp point.

The use of a pointer moving along lines of large print while the student or teacher reads can aid in both reading comprehension and developing smooth speech patterns.

REVELATION AND OVERLAYS

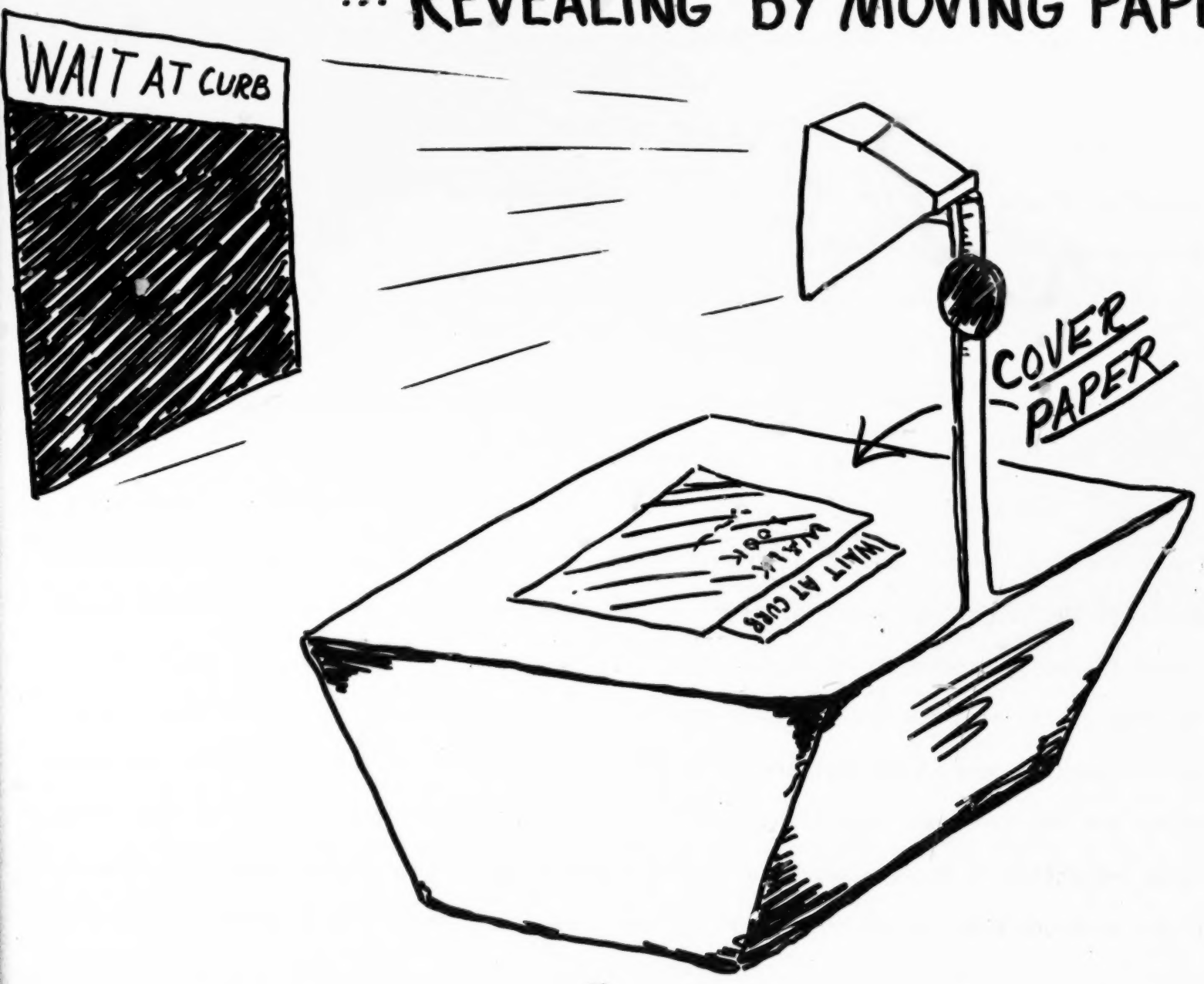
By revealing only a part of a transparency its content can be even further simplified. For example, if the transparency is composed of a number of items such as safety rules, the teacher can cover the transparency with a sheet of typing or spirit duplicating paper. By moving the paper down over the transparency the students will see only the exposed item. The teacher is aided in this manipulation because he can see the entire transparency through the cover paper. (This image will not be bright enough to be projected onto the screen, however.)

If the teacher desires to reveal portions not in a top to bottom sequence, pieces of thin cardboard can be attached much like doors that can be opened and closed. The use of such devices also adds a note of mystery to the instruction which is an effective interest-generating device.

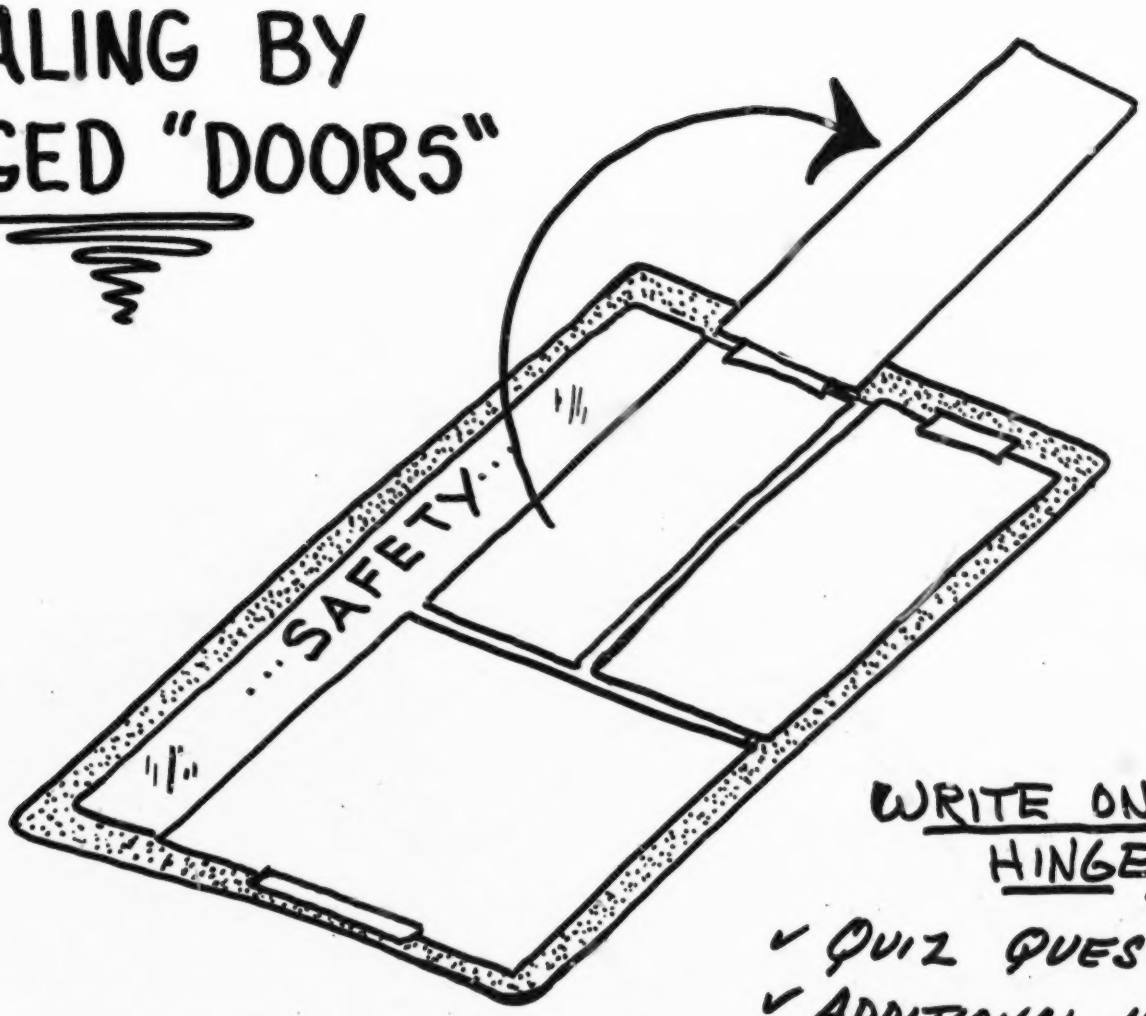
Another way of presenting portions of a transparency is by the use of overlays. Overlays are transparencies that are placed on top of another transparency and attached by tape hinges. A number of such overlays can be used on one basic transparency, each overlay adding additional bits of information to the projected image. A loose overlay can be moved across the basic transparency. Boats can sail the ocean, thermometers rise and fall and verbs change positions with ease! Don't forget, the teacher can also add drawings and symbols to prepared transparencies with grease pencils or colored marking pens while they are being projected. Special students are often fascinated by the teacher who has developed sufficient skills to make drawings on clear plastic as they watch.

Overhead projection is an easy way to give directions to children using workbooks. A transparency of the workbook page can be projected onto the screen. By the use of a pointer, each child

... REVEALING BY MOVING PAPER...



REVEALING BY HINGED "DOORS"

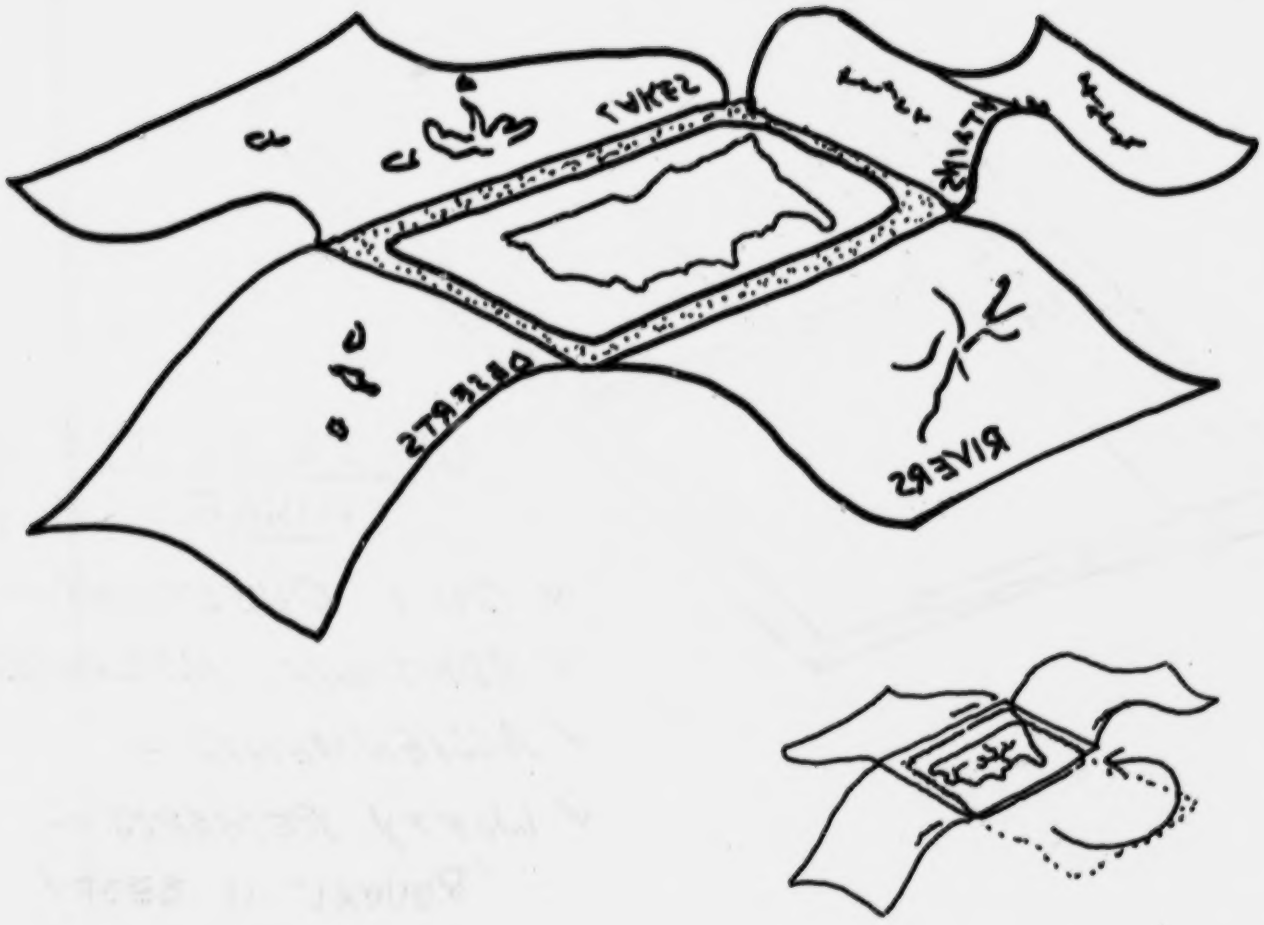


WRITE ON THE HINGE!

- ✓ QUIZ QUESTIONS —
- ✓ ADDITIONAL INFORMATION —
- ✓ ASSIGNMENTS —
- ✓ WITTY REMARKS —

"REVEAL" IS BEEF!

OVERLAYS



can easily see to what particular item the teacher is referring. Similarly, most printed pages can be used to make a thermofax "ditto" (spirit duplicator) master to provide each student with a copy while the teacher uses a transparency of the same page to coordinate the classroom activities. Further control of the students' perception can be achieved by the judicious use of color. A brightly colored area will attract their attention as will colored underlines and circles. Similarities between items can be emphasized by connecting them with a line of the same color. Use color sparingly, over-use reduces its attention-attracting properties.

Overhead projection is not limited to transparency use. Most flat objects that have a distinctive silhouette can be projected in a most life-like manner. Leaf identification is effortless. Traffic safety can be taught by using the basic traffic sign shapes cut from oaktag or cardboard (paper is too light and tends to blow about). Try plastic rulers and protractors. Don't overlook the many small, flat plastic "dimestore" toys, animals, etc.

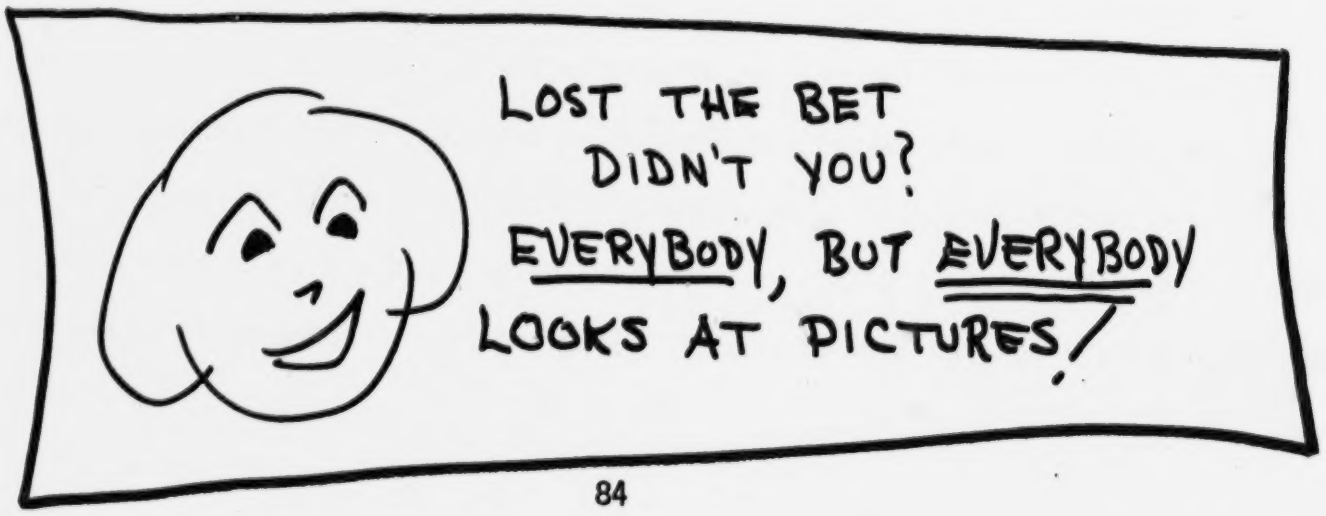
Don't neglect the transparency as a reference source. Patterns and diagrams can be left projected while a class works, students can then refer to the large, bright image for self-guidance as they proceed at their tasks.

One area often overlooked by teachers is that of using overhead projection by students. This can range from the teacher simply making and projecting transparencies of student work (be certain they use a soft lead pencil) to letting the students themselves operate the projector and make transparencies. Even very young students can identify words, numbers, or circle a picture on the transparency by drawing a colored line around it. Some teachers arrange their students in groups

and each group makes a transparency. Teachers report that such activities contribute to a shared experience and have at times increased the students' appreciation of instructional materials.

A logical question is, "What to do if the overhead projector won't work?" Assuming that the simple tips given earlier won't help, there is still no need to panic. The verbal explanation can still be made. A piece of white paper can be taped behind the transparency. The teacher can hold this up for the class to see, or pass it around - not as effective as projection, but as good as common practices with flat pictures just a few years ago.

Some teachers report that it is worthwhile to practice in private before using transparencies in front of their classes. Such practice plus the careful procedures necessary to select topics, state instructional objectives and design transparencies, focuses attention on fundamentals of instruction. Thus, not only is the instruction of the specific topic improved but the total instructional competencies of the teacher undergoes significant betterment.



TEACHER EVALUATION

Respond to each item by answering

YES, SOMEWHAT, or NO

USE OF OVERHEAD PROJECTION

	Informative	Clearly Presented	Practical	Relevant
Introduction	_____	_____	_____	_____
Projector Operation and Maintenance	_____	_____	_____	_____
Transparencies	_____	_____	_____	_____
Transparency Design	_____	_____	_____	_____
Teaching with Overhead Projection	_____	_____	_____	_____

Have any aspects of overhead projection that you think are important to special class teachers been omitted?

Do any factors beyond your control prevent you from effectively using overhead projection? Specify.

Further Evaluative Comments:

TEACHER EVALUATION

Respond to each item by answering

YES, SOMEWHAT, or NO

USE OF OVERHEAD PROJECTION

	Informative	Clearly Presented	Practical	Relevant
Introduction	_____	_____	_____	_____
Projector Operation and Maintenance	_____	_____	_____	_____
Transparencies	_____	_____	_____	_____
Transparency Design	_____	_____	_____	_____
Teaching with Overhead Projection	_____	_____	_____	_____

Have any aspects of overhead projection that you think are important to special class teachers been omitted?

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Further Evaluative Comments: